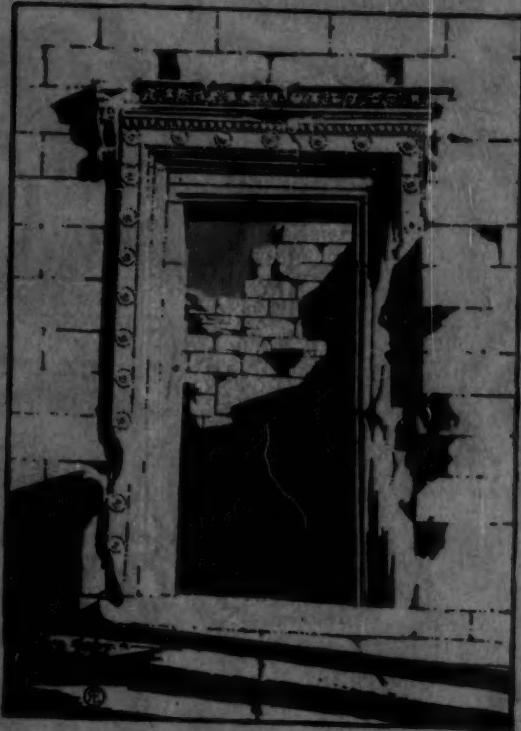


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SEPTEMBER
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COMPETITION PROGRAM—A SMALL BRICK HOUSE—PAGE 2

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THE ARCHITECTURAL FORUM

VOLUME XXXI

NUMBER 3

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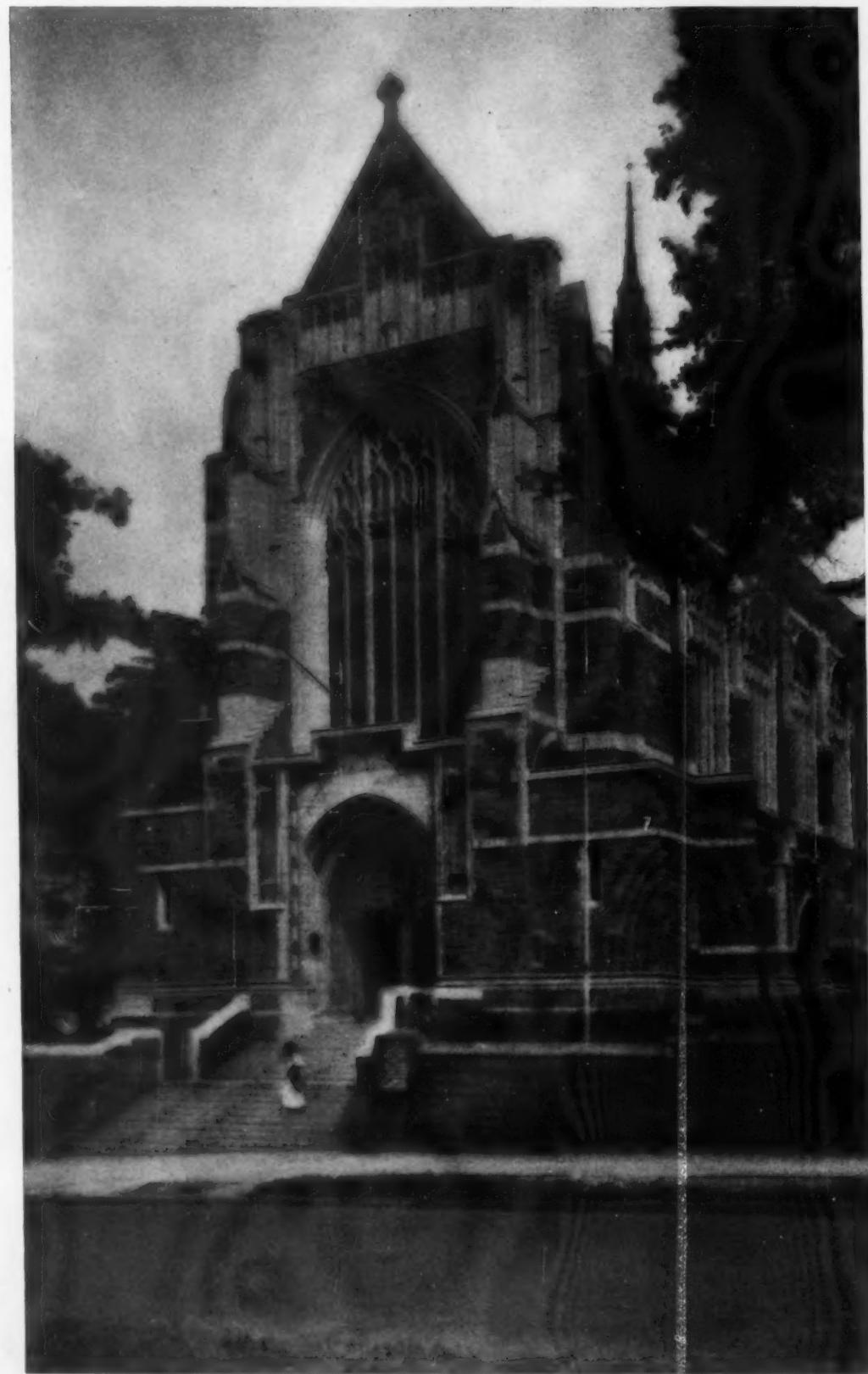
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CHAPEL OF THE INTERCESSION, NEW YORK CITY
BERTRAM GROSVENOR GOODHUE, ARCHITECT
Photo by John Wallace Gillies

THE ARCHITECTURAL FORUM FOR QUARTER CENTURY THE BRICKBUILDER

VOLUME XXXI

SEPTEMBER 1919.

NUMBER 3

The New University of Colorado Buildings, Boulder, Colo.

DAY & KLAUDER, ARCHITECTS

By AYMAR EMBURY II

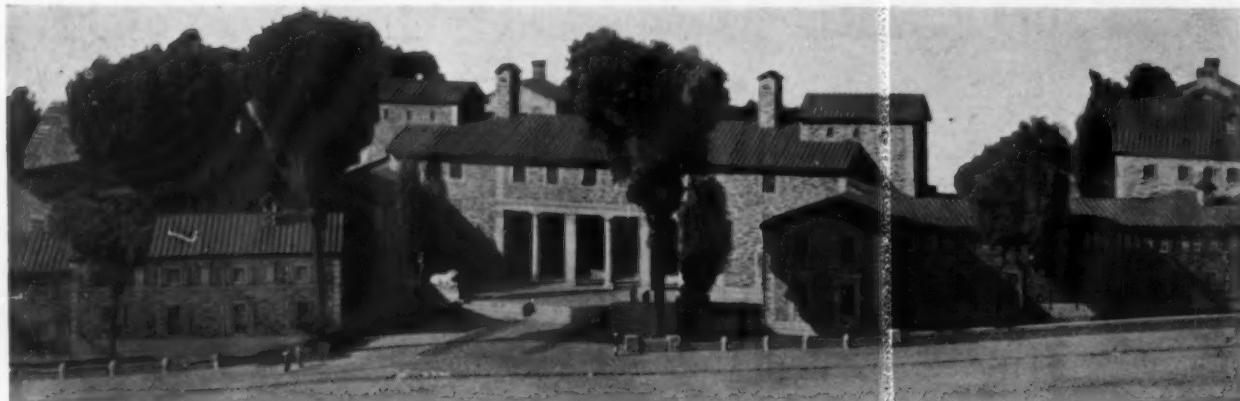
THE sensible way to erect any great group of buildings is to determine in advance a program or group plan for its development as far as this can be foreseen, whether the buildings to be erected immediately are few or many; but unfortunately most American universities have not taken this course of action, and in consequence are housed in helter-skelter collections of buildings, of architectures as miscellaneous as the periods in which they were built, and arranged without regard to convenient interrelation of functions or to the collective picture which they would present.

It is probable that the earliest American universities did, at least in a small way, think of the buildings as a group; certainly this was the case in the University of Virginia; and, a Princeton man myself, I happen to know that at Princeton the small group of eighteenth century buildings was planned as a group when the college was begun; it is probable that other of the older American universities did have group plans intended to care for what seemed to the men of that day the needs of the universities for a considerable time. One cannot blame the trustees of, let us say, Harvard University for not foreseeing in the eighteenth century the development of the University to-day; but as practically every college and university in the country during the nineteenth century built its buildings for the most part without regard to what

had gone before or what might come after, the average American university is an architectural mess, and only now are the universities endeavoring to remedy the mistakes which have been made during the last one hundred years. At Princeton, for example, the original small group was almost swallowed up during the years between 1850 and 1890, and when at the one hundred and fiftieth anniversary of the founding of the college a new group plan was considered, it was necessarily not a development and continuation of the original group plan, but was based upon a fundamentally different conception of the grouping of college buildings. Even the original style of architecture of the university was ignored when it was determined that any future buildings should be based upon the English collegiate Gothic. To my mind this was something of a mistake, and I should have liked to have seen Princeton developed in a more or less colonial style with the remaining old buildings as a basis; but the Gothic buildings which have been erected around Princeton have been for the most part of such excellent character that I have been steadily growing weaker in my belief that a mistake was made, and finally, when I saw for the first time, this spring, the new Freshman dormitories and the dining hall group, designed by Day & Klauder, I realized that Gothic was being used no longer as a tradition but as a modern and living



General View of Model
Looking toward the West



View Showing Administration Building from Pennsylvania Avenue

architectural style. The firm of Day & Klauder has been notable for the excellence of their collegiate buildings, but I can recall no other which approaches the magnificence of design, the richness and beauty of detail, and the careful attention to material of the dining halls at Princeton, and when Mr. Klauder brought into my office the drawings of the new buildings of the Colorado University, I was prepared to find perhaps nothing better than the dining halls at Princeton, but at least a development of similar character.

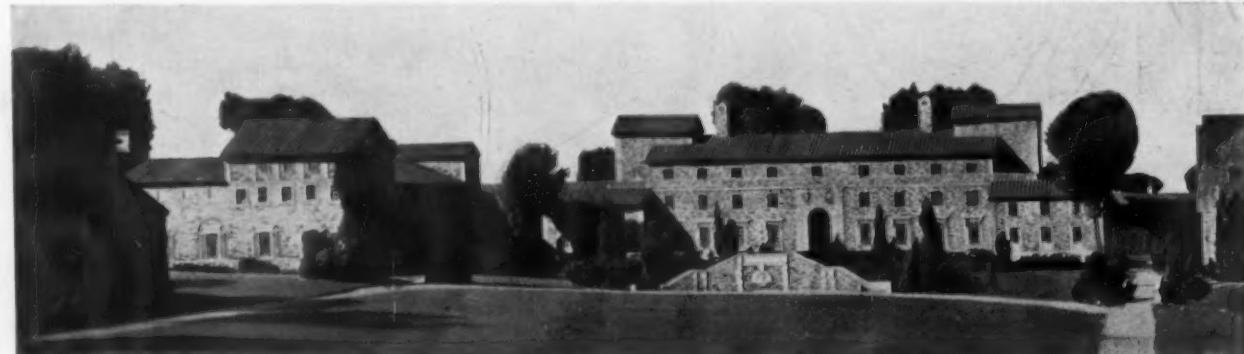
At the time of the architects' study of the development plan the trustees of Colorado University asked if the English Gothic style could be used as a keynote or motive for their new buildings; but upon Mr. Day's visit to the site after the completion of the preliminary scheme it occurred to him that another style would be better fitted to the conditions. With further study of the problem it was not difficult to convince the trustees that the English Gothic style was not necessarily the only one for a university, and was probably not the best which could be devised for the southwest part of the United States. In Colorado the architect has a freedom which he would not find elsewhere. In so far as any really traditional architecture exists, it would be the flat roofed adobe of the Spanish Mexican settlements; but the examples, within the limits of the state, are so insignificant as to be

negligible, and the new buildings built in the state have been, as elsewhere in the United States, of every conceivable style and of all possible materials.

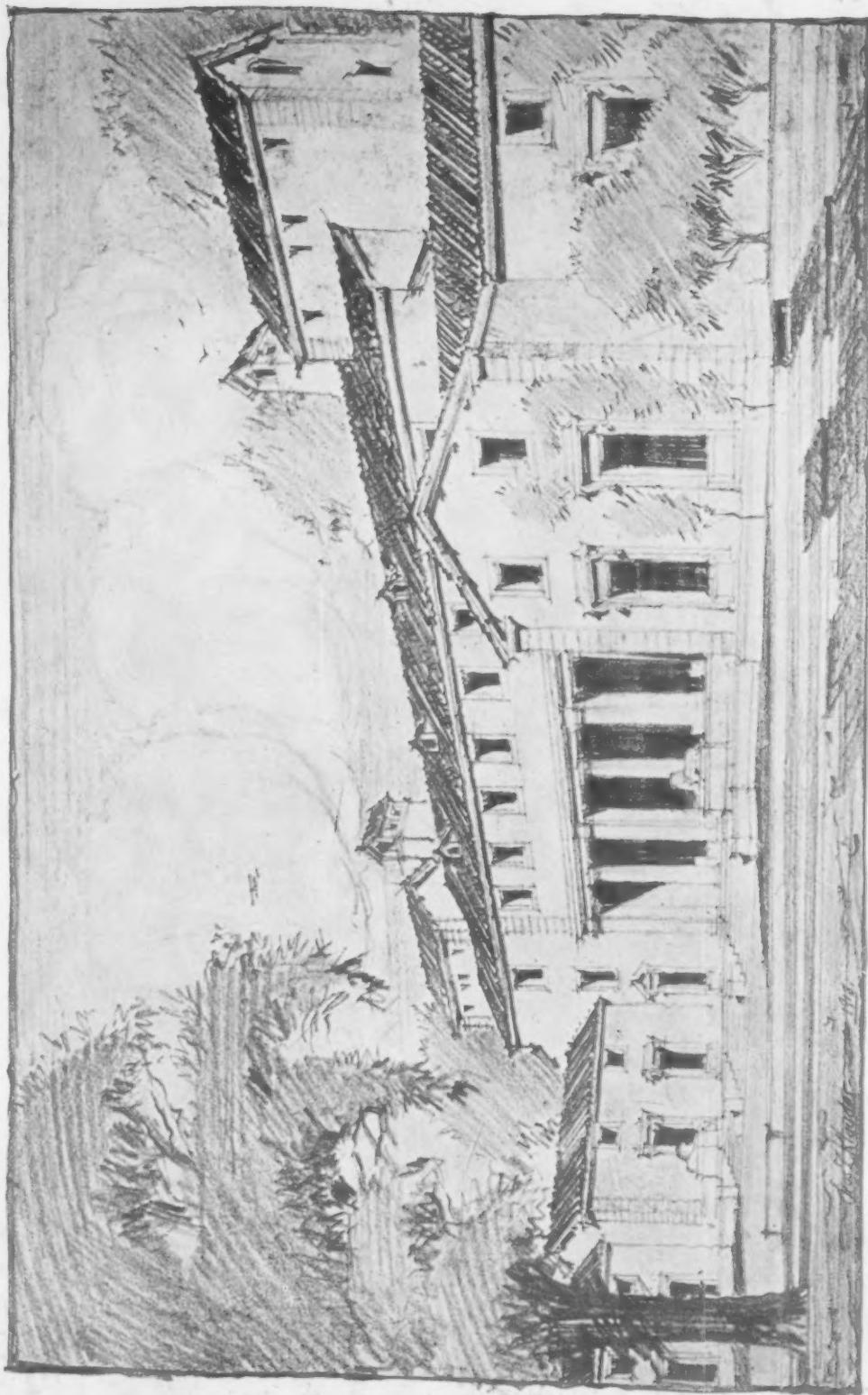
However, there are certain guiding elements in the choice of a style which have led to the design shown in Mr. Klauder's drawings. These are, as nearly as I can determine them: The university is in the country; the style should therefore not be urban. As a university is made up of a multitude of small units,—class rooms and living quarters for the students and faculty,—a monumental style for the whole is unsuitable. As the university is in the Southwest, an architecture suggestive of its location should be adopted. As the site is irregular and as the new development must conform to the spaces not already occupied by buildings, the style must be flexible.

Now it is obvious that these conditions could be met by a brand new style of architecture, if any one were able to invent a new style; but as no one is, and as Mr. Klauder is wise enough to know that no one is, he cast about in his mind for a prototype which should meet these conditions and found one, surprisingly enough, in the free, country-town architecture of northern Italy.

Personally I do not believe that he tried all other architectures and found them wanting; but that, knowing as he does, how informal, how free and



View of Administration Building across Central Court

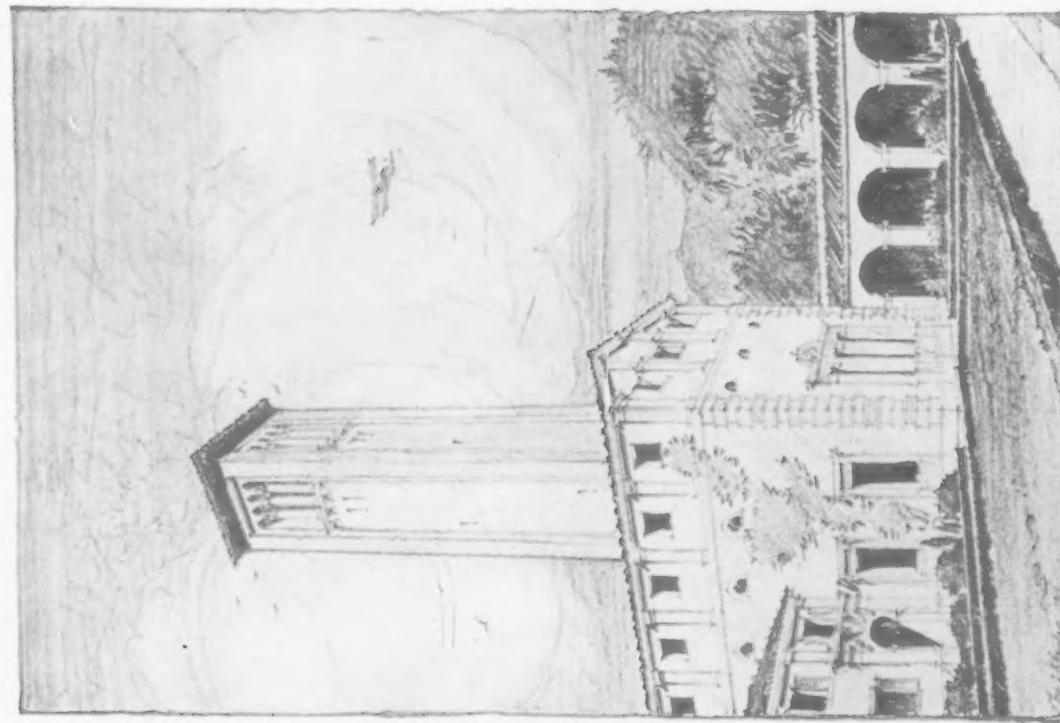


Administration Building
Colorado University Buildings, Boulder, Colorado
Day & Klauder, Architects

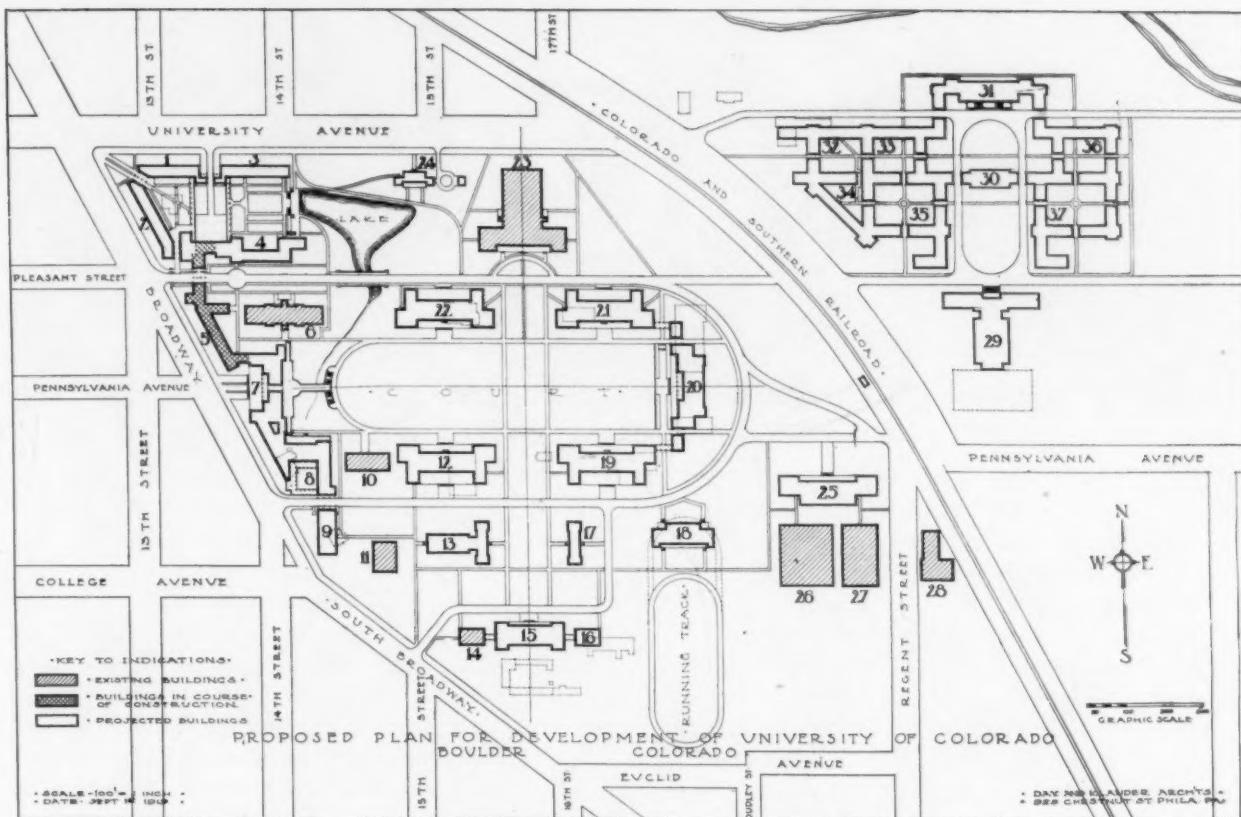


Administration Building Terrace

Colorado University Buildings, Boulder, Colorado
Day & Klauder, Architects



East Court, Women's Dormitories



Development Plan for University of Colorado, Boulder, Colo.

1-3, 5. Women's Dormitories
4. Dining Halls
6. Hale Science Building
7. Administration Building
8. Social Center Building
9. Theater

10. Guggenheim Law Building
11, 12. Science Building
13. Medical Buildings
14. Dennison Memorial Building
15-17. Medical Buildings
18. Women's Gymnasium

19. Science Building
20. Library
21. Physics Laboratory
22. Liberal Arts Building
23. Mackey Auditorium
24. President's House

25. School of Engineering
26-28. Shops
29. Men's Gymnasium
30. Kitchen Building
31. Dining Halls
32-37. Men's Dormitories

how plastic this style is and also what delicious combinations of the simple, the mannered and the dignified can be made, he chose the style and argued for it, not so much because he thought it was the only thing which could be used, as because he liked it and believed in it.

The average American architect experimenting with Italian motifs produces almost invariably a building based on a selected few of the many buildings of the Renaissance which are to be found in Italy. We look upon symmetry, balance and the orders as being the root, trunk, branch and blossom of the Italian style; yet when we think back over what we have seen of Italy, or indeed of any part of the south of Europe, we realize that nothing is further from the case. Much Italian architecture, even of the Renaissance, is as irregular, as picturesque and as flexible as the collegiate Gothic of England or the Renaissance of the Loire, and the motifs from which this picturesqueness is built are few in number, simple in form and of very ancient conception. We all know that when we experiment with the Italian style we are very apt to produce something rigid, formal, almost monu-

mental; while we also know that the genuine Italian architecture, except in certain of the villas, rarely will possess any of these qualities. Personally I do not know whether the little southern European villages are more picturesque and charming than those of northern France and England. Some of us prefer the one and some the other; most, I think, prefer whichever they have seen last, yet the point is that from both the impression we carry away is one of picturesqueness and of charm, not of dignity and symmetry, nor of balance and formality.

Such a style is then particularly adapted to the needs of a university where all buildings are of nearly equal importance, although of different uses, and where no buildings can justly be assumed to dominate the group. The average group plan chooses one building as its center and designs others to form a setting for it. The administration building usually is chosen as this center, and yet the administration of a university needs very little space and is in many ways of lesser importance than others of the university functions. Certainly the administration building



View of Library across Central Court with Physics Laboratory at Left

will not have the enormous rooms or tremendous heights which are needed to give scale to the center of a monumental scheme.

McKim, Mead & White, when they designed Columbia, chose for their central feature the library. As erected, it is an excellent center for an architectural scheme, but I think that no one would recognize its purpose from an examination of its exterior or even of its plan. There are, after all, only one or two buildings forming a part of the university group which need enormous central halls: the gymnasium for one and an auditorium where commencements can be held for another. Certainly no one would make a gymnasium the central feature of a group intended primarily for mental training, and as the auditorium in the average university is used but a very few times a year, it has become a mere frill upon the academic robe and is often dispensed with or reduced to proportions which will not demand an expense incommensurate with its utility.

Yet in every university certain of the buildings are naturally of small scale, as the dormitories; and others of larger scale, as the class-room buildings, the difference being not very great and yet not negligible. In the design, then, of adjoining buildings to house such diverse collegiate functions, the architect is liable to error either in conforming the types of building exactly and rendering his architecture inexpressive, or, by changing the scale and character of design, to lose the group harmony which must exist. This is especially true in buildings of the classic type, as, for example, in the University of Virginia, where certain of the new buildings, even those by McKim, Mead & White, do not accord in scale or in character with the old, although the same classic motives are employed in both. One of the advantages of Gothic collegiate architecture is that a single scale is employed in practically all the buildings of Gothic type, size and importance being indicated by multiplication of small windows rather than by the

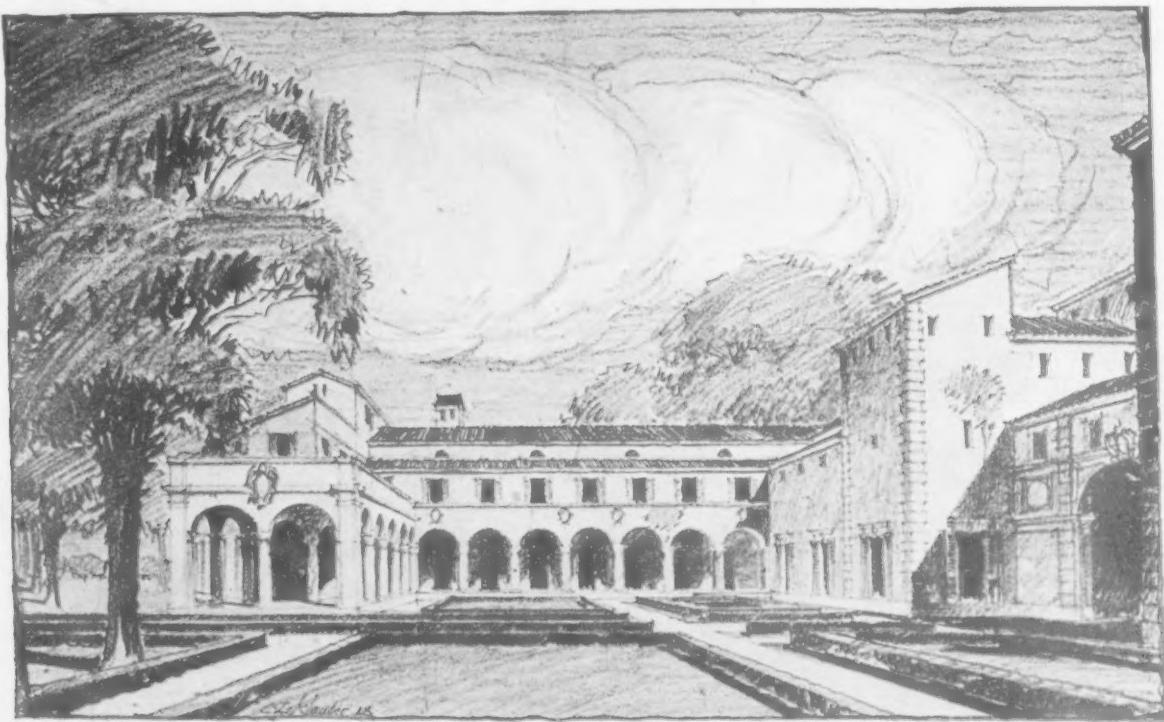
enlargement of single openings, and by piling up mountains of small details to form great masses instead of by magnifying single motives.

Of course it is exactly in a college group where the differences in scale are not too great that the flexible style of architecture, such as that chosen for the Colorado University buildings, can best be employed. One is at liberty to omit the orders in the smaller buildings and to keep the fenestration about the same throughout, so that the character of the work remains unchanged, although the relative importance of particular units is easily emphasized by the use of the orders and the beautification of openings or by an increase in the amount of ornament.

Now it is very easy to sit down and say, "My design is going to be free, and I am not going to be hampered by my preconceived ideas about symmetry and balance and things of that sort." It is quite another thing actually to work with such freedom, so I can imagine that had Mr. Klauder been less familiar with Gothic work he would almost inevitably have chosen a plan which would have resulted in formal buildings; but the plan has apparently been laid out, first with convenience and accessibility in mind; and, second, with a view to picturesque grouping rather than with the primary object of one grand *coup d'œil*, in which a magnificent central plaza should be flanked by smaller but similar buildings and terminated by a monument to the architect and something else incidentally. As a matter of fact, most plans in which the center has been strongly emphasized have been by no means as successful when erected as they appear to be on paper, because no one can quite grasp a very big scheme at one time, and if a large number of buildings form part of this center, the scheme is inevitably big. Even in the rather modest proportions of the University of Virginia, one fails to realize on the ground the beauty of the scheme as one does in the drawings of the plan, and in larger developments the fact that there is a



West Entrance, Women's Dormitory Group



South Front, Social Center Building

*Colorado University Buildings, Boulder, Colorado
Day & Klauder, Architects*



Women's Dormitories, East Court



Gymnasium Building

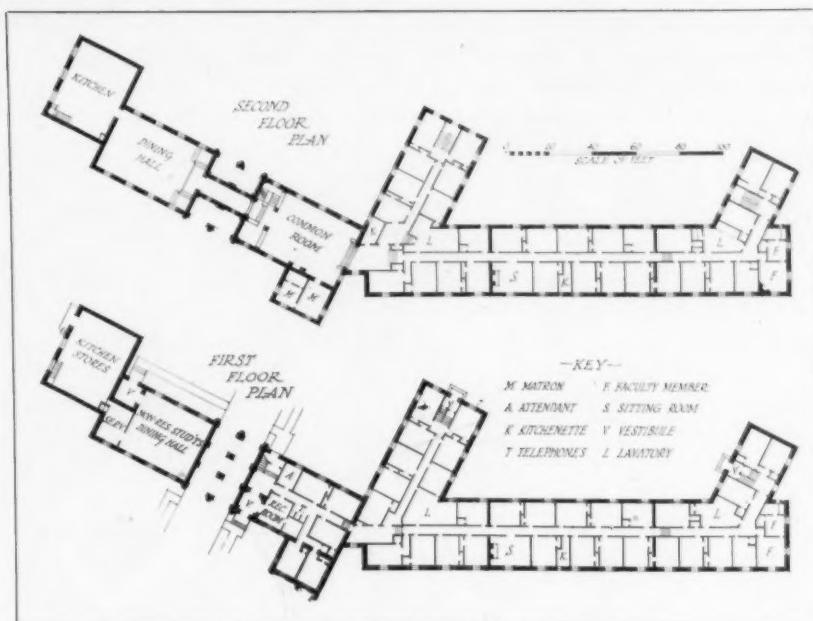
*Colorado University Buildings, Boulder, Colorado
Day & Klauder, Architects*

scheme at all is very apt to be lost. Therefore, when buildings are necessarily of modest proportions and of small scale, as is the case in the university group, picturesqueness of silhouette and small and intimate groupings are rather to be sought than monumental plan.

In the Colorado University group plan a beginning had already been made for a monumental scheme and this could not well be abandoned, but the new plan places the buildings as close together as is practical, introduces small courts, and especially in the dining hall and dormitory group diminishes the scale, not of the buildings, but of the openings between the buildings, to that of the familiar English university plan; and, further, the buildings have been placed in general conforming to the boundaries of the property as well as indicating through their forms the "sense" or axis direction of the original grouping. This has produced a plan full of delicate complications and susceptible of an infinite variety of interpretations in elevation. Of these the most has been made. The administration building is placed at the main entrance to the whole group center, but is also attached by low wings to the dormitory groups and the social center building or community club house. A number of studies both in drawing and in model show what interesting results can be produced by such a set of determining conditions in the hands of a skilful and intelligent designer.

The main entrance to the group cuts directly under the administration building, and the treatment of this entrance and the combination of columns and pilasters against piers is sufficiently impressive to indicate its function as the principal entrance without losing the scale of the building. Of course this is only possible because of the naturalness and simplicity with which the adjoining buildings are handled. After all, architectural treatments of main entrances and principal rooms have as their basis the same principles which apply to advertising. Where a street is filled with blatant signs, the sign which will attract attention has to be enormous; but in a street in which all the signs are small and modest, a slightly more ornate treatment of even a small sign at once attracts attention.

I like this sort of thing; perhaps I am wrong, but I have felt for a great many years that here



Floor Plans of First Unit of Women's Dormitories and Dining Hall,
Now Under Construction

in this country we architects have striven to outdo each other by increasing the size of our orders and by the use of more costly materials, and I don't believe that this is either necessary or sane. Just as every new hotel erected in New York tries to have a bigger lobby, a more expensive dining room, brighter gilt, redder plush, so in public buildings we have tried too long to use the biggest columns, of the whitest marble, instead of forgetting the size or cost and focusing our attention upon design. Not only has Mr. Klauder in this group of buildings given us the best of value in his design, but he has given us design of a type I have personally never seen used before in this country in classic building. His thought seems to be primarily for an interesting silhouette rather than for a dominating order, and classic architecture used in this way appears to have a new meaning and vitality.

I wonder how many of us who have traveled in Italy and through the south of France (where the architecture is after all not very different from that of northern Italy) have carried away the silhouettes of roofs rather than the details of orders. To me it has come almost as a revelation that what I like about Italian architecture is not the Renaissance detail but the picturesque agglomerations of roofs of various heights and pitches and intersections that one finds throughout the old work, and so seldom in the new.

As to the plan of the University itself, without attention to the details of the various buildings, there is not much that need be said. No outside architect, unfamiliar with the property and without acquaintance with the wishes of the board of

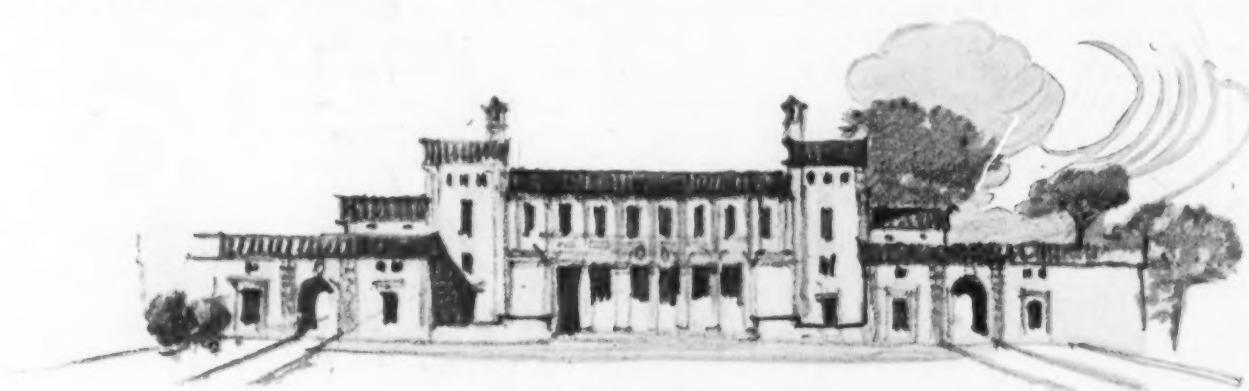
trustees, or whatever the guiding body may be, can form much of an idea of the problem which confronted the designer. There is a considerable number of old buildings at present on the property; some of these are ugly and some of them passive, but there are no two of them which look anything alike or which are related in scale, in mass or in location. It is inevitable that the investment they represent must be utilized in some way; some of them may perhaps be torn down, but it is too much to expect that any university will at once or even within a few years throw away several million dollars' worth of buildings simply because they are ugly and unsuited to any university development, when they are possible for use as class rooms or dormitories, and I do not suppose that the universities can be blamed for accepting the situations as they are. The study of the proposed group plan reveals the fact that these buildings have been masked so far as possible by the new structures, and if they remain as blemishes in the finished group, they will not be conspicuous blemishes.

Much might be said of the designs for the prospective new buildings and of their plans, but after all they are at present tentative, and detailed criticism, either favorable or the contrary, is very little to the point. The one thing which is of supreme interest is the adoption of a style for them which, as far as this country goes, is as novel as the Aztec, and the surprising discovery that it seems to be eminently fitted to the needs of the country American university. Of course the beauty of the old Italian work is to an almost realized degree dependent upon the surface texture of the walls, the irregularities of the slopes of the roofs, the color of the tile, and the similar miracles which time has performed. If this group should be completed substantially from the sketches as they stand, its appearance would be greatly influenced by the successful imitation in new work of the age quality of the old work. Having in mind the wonderful texture of the roofs and walls of the work of Day & Klauder in other styles, one feels

fairly well assured that the result will here be satisfactory. The material chosen for the walls is a stone which splits naturally into long, horizontal pieces and which varies in color from pale yellow brown almost to purple. With such a stone laid up in wide cement joints the texture of the surface can hardly fail to be interesting. My one fear is that for such a large group it may prove to be monotonous; however, it would be by no means difficult to change the material to brick or even to stucco in several of the buildings, should this prove advisable. Likewise in the roofs, Mr. Klauder may be trusted to produce the delicate nuances of line and color that age has accomplished in the old Italian buildings, without striving for the effect of age as an end.

Of course the difference between what is legitimate in the architectural treatment of wall surfaces and roofs and what is mere scenery is that in the one case the qualities which age has produced in the old work are reproduced, and in the other case the more or less realistic appearance of age is the end sought for. We are so blinded in this country by our passion for "antiques" that we forget that a thing is not necessarily good because it is old, but that age is very apt to bring a lovely patina to surfaces which when new were ugly. There is all the difference in the world between stage scenery and good design, and yet many of us do not seem to realize that the superficial effect of age is not the aim of architecture; or that, conversely, if we wish to produce new buildings as lovely as the best of the old buildings, we must refine our designs as the old buildings were rarely refined.

That is only by the way: the important thing is that Mr. Klauder has made a new happy use of old precedent—one which will be in his hands successful, and one which will help to lift the heavy curse that lies upon us all, by which we seem compelled forever to think only of symmetry and the orders.



Sketch Study for the Library by Mr. Klauder

✓ Architecture of the Dalmatian Coast

PART III (Concluding Paper)

By HAROLD DONALDSON EBERLEIN

Art is eternal and as architecture is the queen, the visible union and consummation of all the decorative arts, it is only reasonable that the architect should take cognizance of archaeology, which is a treasure-house of past art and a never failing spring of inspiration. In this field Dalmatia has much of value for us in the remains of early art endeavor.

In his "Man in Art," Philip Gilbert Hamerton quotes an amusing instance of an archaeologist neighbor of his who stoutly maintained that "as each period of history had its own forms of art, it was wrong to attempt any revival." This same gentleman would buy a carved oak cabinet if it was three hundred years old, but deemed any attempt to revive oak carving as a form of artistic expression little better than a kind of forgery. His jealous archaeological instinct impelled him to mummify and pigeonhole each and every past form of art rather than that it should live anew in rivalry with its own earlier productions.

For those who may be disposed to sympathize with Mr. Hamerton's archaeologist neighbor's point of view and question whether Dalmatian remains have any calculable value for us, it should be sufficient to call attention to the vast store of very lively inspiration that Robert and James Adam derived from Spalato alone.

The strictly archaeological remains



Fragments from Byzantine Period

of Dalmatia, as distinguished from the Medieval and Renaissance work discussed in the two preceding papers, fall into two categories,—Roman and Byzantine. Of the work of the Roman period, the palace of Diocletian at Spalato is in itself an exhaustive museum and exemplar. The word "exemplar," rather than "example," is used advisedly, for this building exercised a powerful and pervading influence upon Dalmatian architecture so long as any creative work was essayed.

Both in structural forms and in decorative detail Dalmatian architecture was self-contained to an unusual degree, and Dalmatian architects, of whatever date or of whatever stylistic allegiance, seem never to have wearied of harking back to Spalato for inspiration or precedent.

Giorgio Orsini, as already noted, from the little Temple of Æsculapius, now the Baptistry of the Duomo, derived his scheme for the roof of the Duomo at Sebenico; Andrea Buvina, or Guvina, who carved the thirteenth century doors of the Duomo at Spalato, which deserve to rank amongst the finest examples of medieval wood carving in existence, drew the motif for his stiles and rails from the ornament surrounding the door of that same Temple of Æsculapius.

It is both refreshing and suggestive thus to see local tradition utilized, vivified and developed from century to century, not in a spirit



Fragment from Roman Period

of stereotyped, slavish pedantry, but with a freedom of understanding conducive to vital individuality.

This breaking away from long established convention and precedent, this relaxing of the accepted architectural rules of antiquity into "irregularities" that presaged later Byzantine and Romanesque practice, may be detected in the numerous liberties taken in changing the character and proportion of members hitherto accorded a certain prescriptive fixity, or in the arbitrary omission of them altogether.

One of the most significant of these departures appears in the doorways of both temples (now the Duomo and the Baptistry), which have only architrave and cornice, the frieze being altogether omitted. The illustration also shows upon the architrave an array of scrolls, foliations and arabesques whose affini-



Roman Fragment in Museum at Spalato



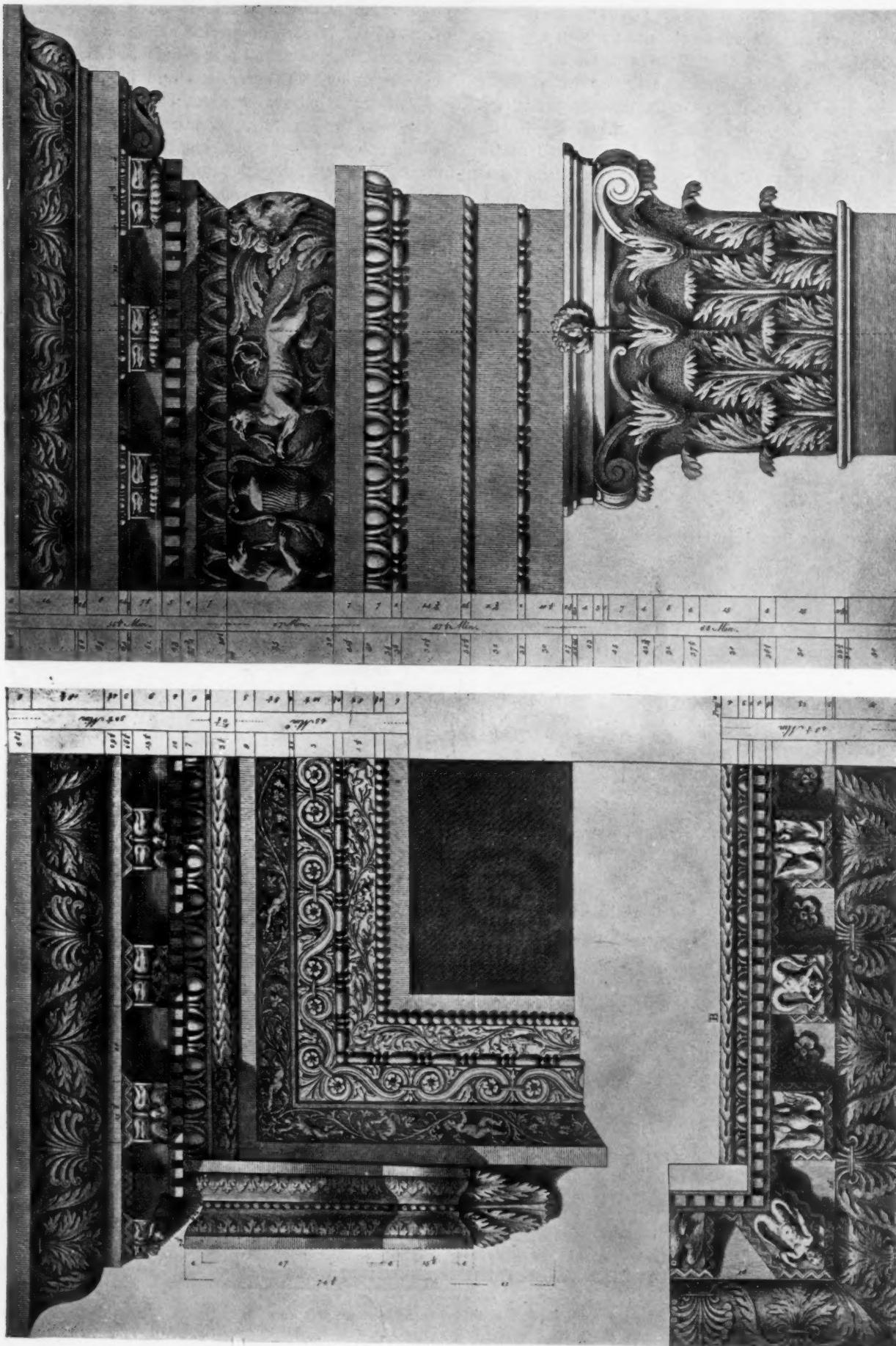
Tablet at Spalato



Fragment from Byzantine Period in Museum at Zara

ties seem to be with the work of a far later period rather than with the earlier Roman usages. The delicacy of the design and the crisp refinement of execution suggest Greek agency.

Other important innovations are the absence of frieze and of any distinct architrave in the cryptoporticus; the springing of the whole vestibule entablature boldly into an arch; plain bell and abacus capitals clearly foreshadowing twelfth century northern Romanesque work; new profiles for mouldings; the appearance of the chevron or zigzag and other new motifs; the miniature arcading of the Porta Aurea as the prototype of an ornament destined to play a conspicuous rôle in later Roman and Gothic work and only a short remove from the arcading on the thirteenth century façade of the Duomo at Zara; and the corbeling of colonnettes and returning of string-courses to form corbeled supports for superposed



DETAILS OF TEMPIO DI GIOVE, SPALATO, NOW THE DUOMO

attached columns. Above all, the peristyle arches, springing from column to column without any relic of entablature, mark the "final emancipation of the arch" and the abandonment of trabeated forms of construction that had outlasted the *principles*. Whether this "greatest step ever taken, the beginning of all later forms of consistent arched architecture, Romanesque or Gothic or any other," was original with the architect of the palace at Spalato, or whether the building merely embodied the workings of a contemporary leaven of experimentation, does not affect its epochal quality.

Numerous other Roman remains and fragments

yield valuable detail studies. Archaeological remains of the Byzantine period are incorporated in many buildings, and not a few detached fragments are gathered at Spalato, Zara and in one or two other places. Almost without exception they are of vigorous design and of incisive, virile execution.

Archaeology has unquestionably been a potent force all through the development of Dalmatian architecture, as the most visible evidences and obvious comparisons on every hand attest; but Italian creative ingenuity and flexibility of manipulation have made of it not an agent of archaic affectation but an instrument of abounding life.



Fragments from the Roman Period in the Museum at Spalato

The New Haven Post Office and Court House

JAMES GAMBLE ROGERS, ARCHITECT

By GEORGE NICHOLS

WHEN the pioneer settlers of New Haven established quarters for their first winter in the new colony, they located them upon the bank of a small creek, which was the natural approach to the new town site, lying about where Commerce street now exists. Tradition has it that the settlers' first architectural efforts were little more than dugouts in the sheltered, northerly bank of this creek, which, as will appear, was to be a determining factor in the lay-out of the present street system of the city.

The colonists arrived in the year 1638, and the following summer, John Brockett, their official surveyor, set off a base line one mile in length, in the rear of the dwellings on the creek bank, and parallel to its course. Upon this base line he developed a parallelogram one mile square. Dividing each side into three parts there resulted nine city blocks, which were separated and surrounded by streets. Lots in the eight outlying blocks were apportioned among individual members of the colony, while the central square was reserved as "common ground" and dedicated to communal activities.

Such was the origin and scheme of the first city plan to be conceived in America, in which a large and centrally located public square formed an organic part. This public square, later known as The Green, became and has always remained the center of New Haven's activities. As many chronicles record, "the history of New Haven is the history of The Green." The Green has come down through nearly three hundred years to the New Haven of to-day, sanctified as the first and continued place of public worship, hallowed as the final resting place of founders and patriots, and rich in historic association with every important event in the life of the city which it now endows with the beauty and distinction of a spacious park.

Dominating the square by reason of their isolated position in the center of its sixty-odd acres of greensward, stand three old Colonial churches, outlined against a background of trees, through which appear glimpses of the vine-clad college buildings. In front stretches an open parade ground surrounded by an avenue of young elms, replacing the century-old veterans which in their time had borne the standard of the "City of Elms." Facing The Green on the surrounding streets are the city hall, county court house, public library and other structures of importance.

Every consideration of past history, present-day necessities, concern for the city plan of the future,

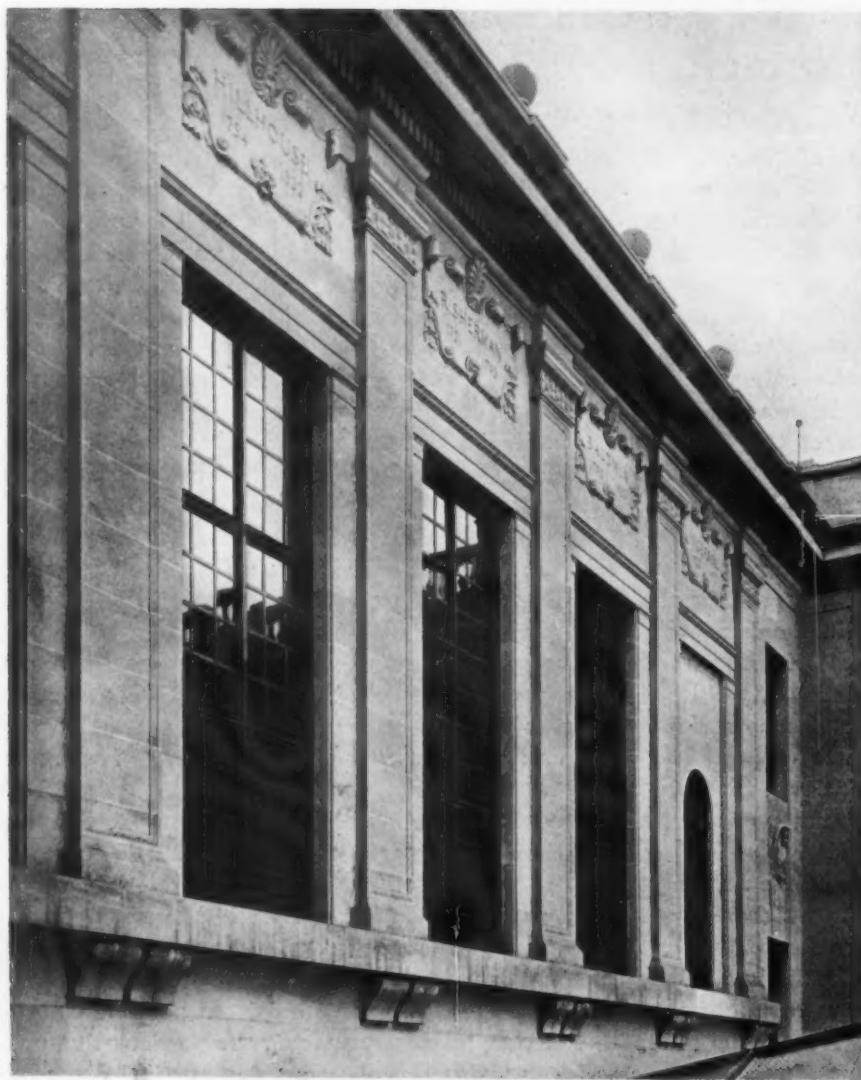
and the continued importance of its focal center demanded the location of the new federal building upon a site facing The Green, which was eventually secured on the southeast corner of Church and Court streets on the easterly side.

Congress has recognized the unique character of the site in large additions to the first appropriation, because of its surroundings and their historic associations. It is interesting to note that upon the greater part of the site stood the old Tontine Hotel, built in 1828, in the basement of which the first post office in New Haven was opened in 1831. The new post office is the last Government building to be designed by an architect selected as the winning competitor under the terms of the "Tarsney Act," repealed a few years ago.

The site is a truly magnificent one in many respects. The open foreground of The Green permits unobstructed views of the principal front from all points within its boundaries. The more distant viewpoints are unfortunately somewhat above the level of the first floor of the building, but the disadvantages of being looked down upon rather than up to have been fairly well overcome. It was impossible to elevate the first floor above a convenient height for service by mail wagons in the rear driveway, but by the use of as many dark granite steps of moderate height as possible before the portico, by closely spacing the portico columns, and otherwise accentuating the vertical lines of the façade, the handicap of low elevation has been lessened to an appreciable extent.

Previous to the erection of the new public library, development of the city plan was vigorously agitated. The advice of expert counsel resulted in a determination to limit the height of future buildings around The Green to a few stories and their style to Colonial motives. It was found impractical to legalize such severe restriction, but an ordinance was passed limiting materials to white stone, or white stone combined with red brick, with the former predominating in the lower stories.

The exterior architectural treatment of the new post office has been nicely calculated to harmonize with the Colonial churches which face it, without sacrificing that monumental character to be desired in an important Government structure. This would have been perhaps more difficult to accomplish had purely Colonial motives been closely adhered to. The presence in the immediate vicinity of several high commercial buildings, and especially of the huge white marble court house, does not prevent



Upper Wall of Court Showing Court-Room Windows

the structure from duly asserting itself. Its elegance and repose, due to careful proportioning and to extreme restraint in the scheme of architectural embellishment, endow it with a distinction adequate to its purpose and clearly express the dignity and grandeur appropriate to a public building.

The beauty of the building will undoubtedly be greatly enhanced when the masses of unhewn stone in the pediment and other spaces allotted to sculpture have been carved and made to add their intended and requisite expression to the composition.

Color in design is a very essential consideration with Mr. Rogers, and while the chosen style of this building does not present an opportunity for the employment of a wide color range, the color scheme both of the exterior and interior has received careful study. Pink Milford granite, pink Tennessee marble and a special and particularly pleasing color and finish for the bronze work lend a softness and warmth to the building in all lights, and distinguish it among the predominating

harsher tones surrounding it. It is particularly delightful under the late afternoon sun, when its marble walls are suffused with a rosy glow, the dark golden bronze in the openings under the shallow portico serving admirably to produce the effect of depth of shadow required for proper accent in the façade.

The building as a whole justifies the belief of its architect in the effectiveness of restrained design well executed in fine material. It is simple and practical in plan and has clear architectural expression of the function and importance of its parts. The studied simplicity of many of its features insures permanency of style and continued harmony with its surroundings.

The building has a frontage of 140 feet on Church street and 200 feet on Court street, with a rear driveway for mail wagons 37 feet wide continuing around the building to Church street with a width of 18 feet. It is three stories high. The lofty first story accommodates the post

office, portions of this story containing an intermediate floor on which various related departments are located. The second story contains the federal district court-room, surrounded by offices for judge, clerk, district attorney, marshal, witnesses and juries. Upon floor also are located offices for the collector-of-the-port and the customs house. The third story provides accommodations for the army and navy recruiting service and engineers, department of justice, internal revenue officials, weather bureau, steamboat inspectors, farm bureau and bureau of animal industry. In the basement are located storage and stock rooms for the post office, and toilet and rest rooms for its clerks and carriers; appraisers' warerooms and examination rooms, and the heating plant and other machinery.

Above the first story the center of the building becomes an open court, which lights the post-office workroom beneath and is the sole source of light for the courtroom, which is thus effectively isolated from street noises.

The building is of steel frame construction, resting upon spread steel grillage footings. All floor and roof construction is hollow terra cotta archend type. All steel is solidly encased in brick or terra cotta. The exterior walls are of pink Tennessee marble, with a sand finish resulting in a warm light gray color. The interior court walls are of Indiana limestone. The main roof is paved with terra cotta tile. All portico windows, with their sash, grilles and revolving door enclosures are of bronze, of a special dull finish, with nearly natural color. All other exterior window frames and sash are of wood, bronze covered.

The first two stories are combined within a single order of pilasters of slight projection, carrying a well modeled cornice, above which the third story is treated as an attic and crowned with a carved marble chêneau. This chêneau is beautifully and simply modeled, and a conspicuous example of the restraint previously alluded to. On the principal, or Church street, front of the building is a shallow portico of ten Corinthian columns with plain shafts in drums and finely carved capitals, slightly varied in detail, the whole crowned with a pediment, whose tympanum carries at present the rough blocks for a future sculptural group. Other uncarved panels in the attic of the corner pavilions are to be similarly treated.

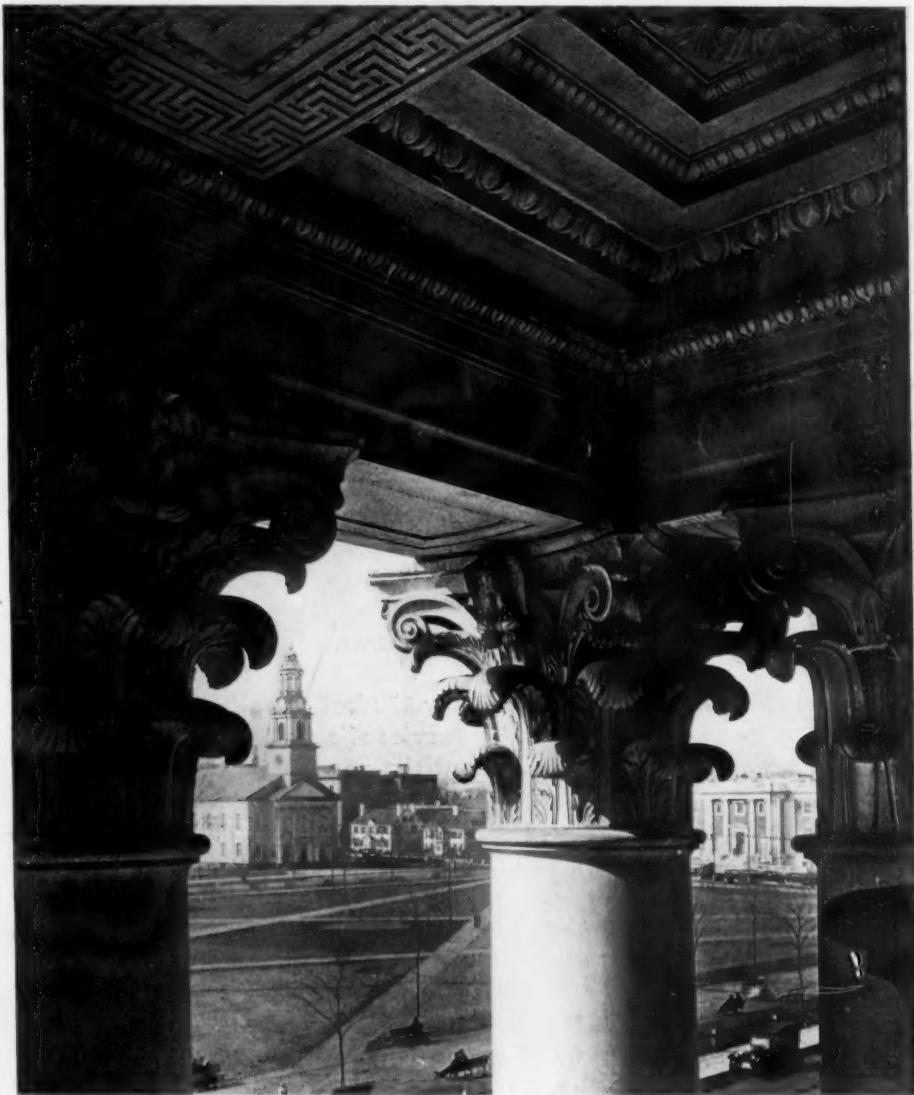
The foliation of the pilaster capitals is modeled with fine distinction, avoiding both unfeeling plainness and a too ornate treatment. The capitals of the portico are appropriately richer but still duly restrained. Additional importance is given the portico by slightly increasing the projection and enrichment of the cornice.

Contrasting color and scale in the portico roof are well avoided by the use of large interlocking tiles cut from the same

marble as the building. Bronze frames between the pilasters extend without interruption to the architrave of the order, all windows above the lowest level being masked by grillework, creating dark panels contrasting with the marble emphasizing perpendicular lines, and lending color and depth to the portico. The ceiling of the portico is of marble, coffered in classic form.

The staircases which occupy the corner pavilions of the front have been lighted by skylights, fortunately avoiding the necessity of breaking these pleasing masses of wall, which form a frame and foil to the portico and emphatically terminate and solidify the façade.

Through the portico one enters the main lobby, 91 feet long and 20 feet wide, whose richly coffered ceiling is carried by travertine stone pilasters, carved capitals and architrave, 25 feet above the marble pavement. Smaller lobbies leading off at each end are 10 feet wide and 86 feet in length,



Detail of Column and Pilaster Capitals of Entrance Portico



Detail of Center Panel of Court-Room Ceiling

and of lesser height. The post-office screen, which fills twenty-eight spaces between the lobby piers, is of bronze, as are the writing desks, radiator grilles, window frames and other furniture. The walls of the small lobbies are also of travertine stone, the ceilings of plaster, treated with glazed gold leaf.

The ceiling of the main lobby is especially worthy of note. The ornamentation is interestingly intricate, good in form and scale, and a sufficient variety of models for the coffer rosettes is employed so that no two alike are seen in proximity. The color of the ceiling is a close approximation to the general effect of the travertine walls, and has been accomplished by repeated applications of buttermilk and rottenstone, each coat being wiped off the high lights of the ornament until an effect of softness and age in perfect harmony with the walls was secured.

The post-office working space is 133 by 170 feet, open to the street on one side, to the service alley on the other, and to the wagon space at the rear. It is thus directly lighted on three sides and also from the court above through a ceiling skylight 61 by 84 feet. The space above the glazed ceiling receives the natural light from the workroom in summer and a mechanical exhaust in winter. The portico window sash in the main lobby are all fitted to open, as are also the intervening sash behind the bronze grilles above the post-office screen. Open air ventilation of the working space on all sides is thus accomplished and abundant daylight is received in every part of the great room.

From each end of the main lobby, staircases and elevators rise to the mezzanine and two upper stories. These stair halls and stairs are finished in the same pink Tennessee marble as the exterior, with a honed finish, and showing a little more pink than the exterior stone. The elevator fronts and grilles are of bronze. All ceilings over the stairs are vaulted in plaster overlaid with glazed gold leaf, the same treatment being carried through the stair hall ceilings as well.

Directly over the main lobby on the Church street front is the court-room lobby, 90 feet long and 20 feet wide, intended to give ample space for waiting lawyers, clients and others attending court. This idea has been further worked out in the architectural treatment of this room; twenty free-standing, monolithic, pink Tennessee columns with bronze capitals divide the wall spaces into convenient recesses in which benches will be placed. The walls between the columns are wainscoted 4 feet high with the same marble as the columns. The spaces above are of plaster, as is the cornice and coffered ceiling, which has been harmoniously treated in lighter shades, repeating the colors of the marble, and glazed with the colors of the bronze work to a greater or less degree, as demanded by the various surfaces.

In the courtroom a rich wall treatment of panels and pilasters is executed in quartered white oak, fumed and stained a light olive color, and the highly ornamented ceiling and cornice are of plaster. The cornice and ceiling beams have been treated to resemble the oak of the walls, with or-

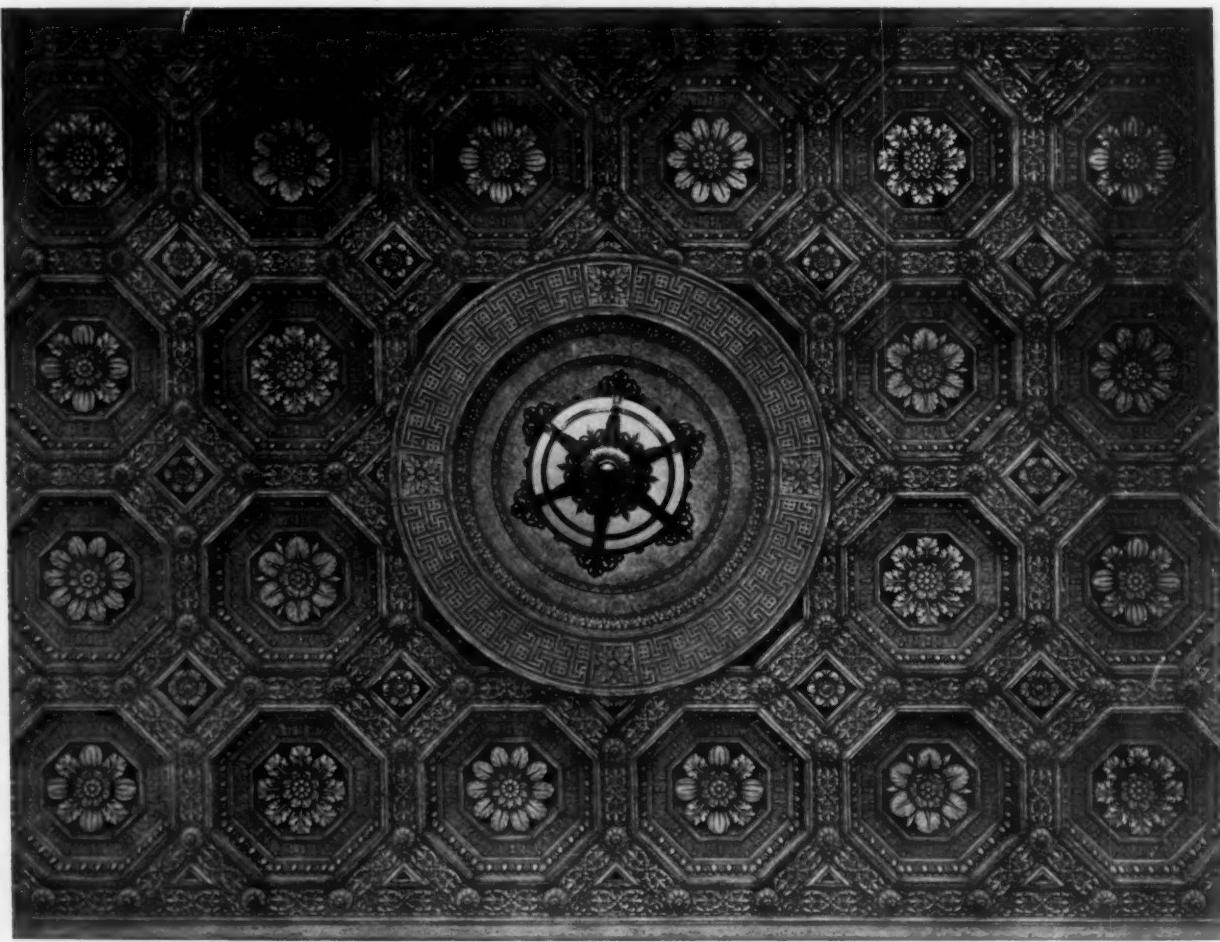
nament picked out in antique gold. The ceiling panels have been glazed to the effect of old stucco work. A dignified, sumptuous room of perfect acoustic qualities has been attained.

The judges' chambers and other important offices have received special treatment and finish, the woodwork being butternut slightly stained and waxed. The wall panels of the judge's private office are hung with pigskin. The walls of the postmaster's office have a particularly charming high paneled wainscot of early English Renaissance feeling, the stonework of the fireplace being echoed in the stone walls showing above the wainscot. An antique ivory tinted ceiling corresponds in period to the paneling. The standard office and corridor woodwork is of East Indian mahogany, stained English brown and rubbed to a dull polish. The grand jury room has a pilaster and paneled wall treatment executed in hard plaster with painted wood trim, the whole treated in tones of ivory, café-au-lait and yellow to enhance the light, which is here somewhat reduced by the proximity of adjacent buildings.

All the special offices, the jury room and the courtroom have floors of compressed cork tile in

strips 3 by 18 inches laid in parquetry herringbone pattern. All other offices have concrete floors covered with battleship linoleum.

The treatment of the office corridors, which surround the open court on the second and third floors, is a noteworthy attempt at permanence and cleanliness. The floors are of pink Tennessee marble dallage, and the walls are wainscoted with white Vermont marble with slight greenish and black veining, laid as ashlar blocks to a height of 7 feet 4 inches in the second story, and in vertical slabs to a height of 6 feet 2 inches in the third. The walls are plain plaster above and terminate with a simple cornice. All architectural mouldings in marble are eliminated. At the doorway recesses solid corners, rounded to a 3½-inch radius, are used, and the window sills are plain solid slabs 3 inches thick with slightly rounded edges. At the floor angle is laid a 1-inch cove of black slate, on this a plain plinth of gray Tennessee marble, and the wainscot is terminated by a plain 4-inch cap of same marble. A similar cove at the base is carried through all toilet rooms, the fields of these floors being of 4-inch vitrified, light gray tile. In furtherance of the desire for easy maintenance, a



Detail of Ceiling of Post Office Public Space

4-inch black slate base is used in all other finished rooms throughout the building, except where marble or stone walls occur. In ordinary rooms the radiators are set exposed in wall recesses below the window sills, which are plain slabs of Tennessee marble 3 inches thick with slightly rounded edges. The radiators in all principal rooms are similarly set, but behind plain steel grilles with moulded steel window sills above. In the offices receiving special decorative treatment these radiator enclosures are of bronze.

Special care has been taken in determining the colors used in plain wall and ceiling painting. In the post-office workroom a color easy on the eyes, and still having a strong light reflecting quality, was obtained after many experiments. At the same time this color is harmonious with the rather difficult color of the natural yellow pine woodwork of the working spaces. Green is grateful to the eye but a light absorbent; yellow is the opposite. By experiment a satisfactory, fundamental warm gray color was found, to which special varieties of blue and yellow and green pigment were added until the present pleasing result was obtained. In the easterly offices subjected to strong sunlight a rather cold French gray wall color was used. In the offices receiving a cold north light this color was warmed with red. The offices at the easterly end of the south side are more or less sunny, and toward the west they are more and more shaded by near-by buildings. Beginning at the easterly office with the cold French gray, more yellow was added in each successive office until in the darkest room a very strong yellow resulted. As all office rooms are trimmed with a chair rail, the dado below was painted the same color throughout, a very dark reddish brown being found to harmonize with all wall colors and the mahogany woodwork.

The building is heated by two horizontal return tubular boilers with smoke consuming furnaces of the down draft type. Electric power from outside sources is used. All rooms have direct radiation, with vacuum return, and in addition forced warm air supply, which is filtered and

moistened, and mechanical exhaust ventilation. A filtered and cooled drinking supply is provided by the house refrigerating plant, and is piped to all lavatories and to drinking fountains in the corridors. The usual fire hose and standpipe systems are installed. The building is lighted by electricity, with emergency gas piping in all public halls and staircases, and with combination gas and electric fixtures throughout the post-office workrooms and basement. The beauty of all decorated rooms in the building has been enhanced by excellent and effective lighting fixtures designed by the architect. There are two electric passenger elevators and one electric freight elevator. Two mail chutes deliver direct to the post-office workroom. Telephone and bell conduits, and conduits for watchmen's service and vault protection, are provided. Vacuum sweepers' outlets are located in all corridors.

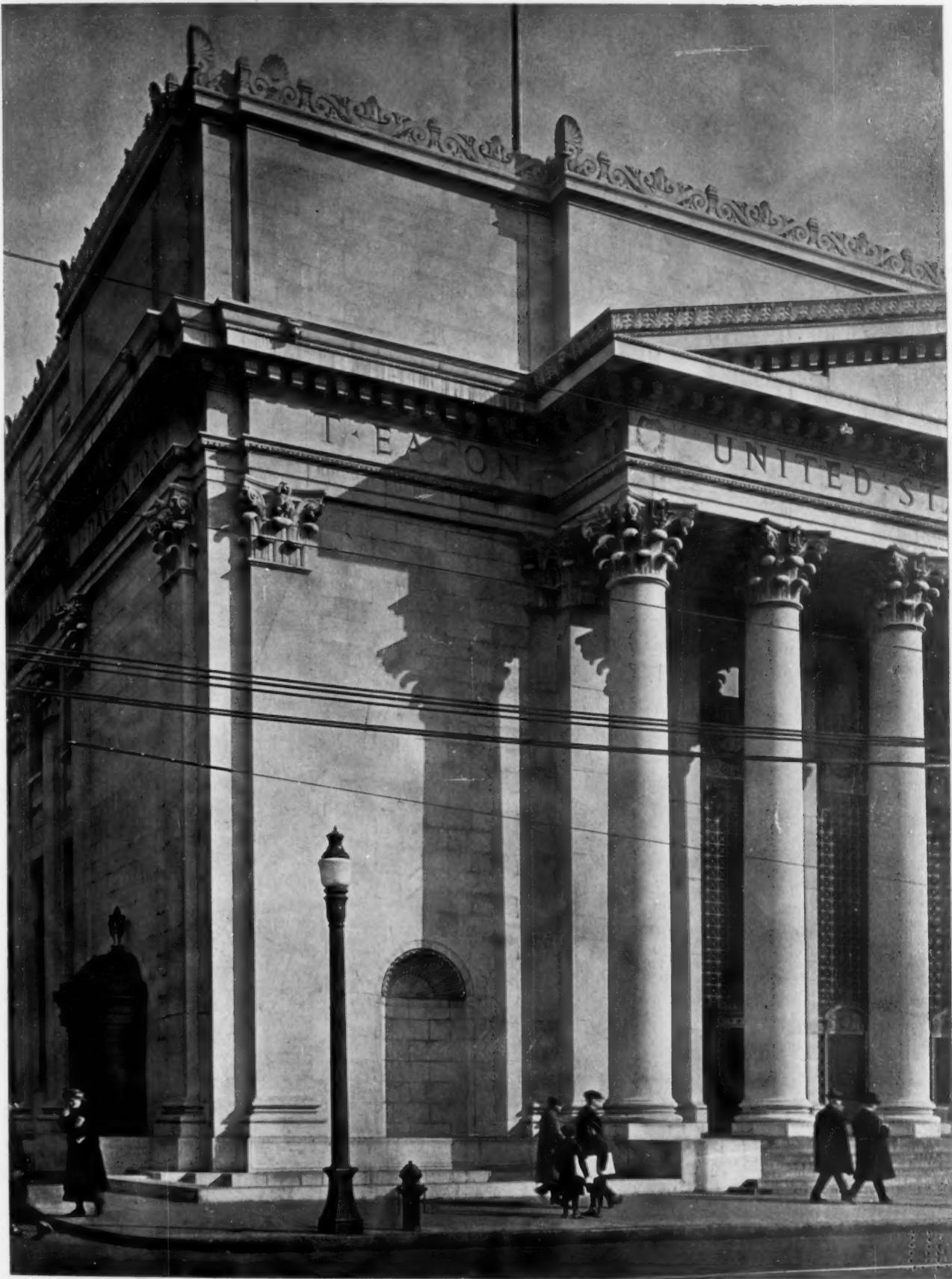
The cubiture of the building above the basement floor is 2,028,300 cubic feet. Its total cost was \$1,212,000, or about 60 cents per cubic foot.

Although unwise counsels have succeeded in blocking, it is to be hoped only temporarily, the proposal to open a monumental avenue of approach to The Green by widening Court street on the north side, from a suggested new railroad station and plaza fronting on State street two blocks east, the city is fortunate in having so located its new federal building that it will occupy a prominent and suitable place in this extension of the city plan whenever it may be accomplished. It is to be hoped that the city will acquire the opposite corner of Court street, add it to the existing City Hall plot, and so make possible the placing of a complementary monumental building opposite the post office as a beginning of this proposed avenue of approach. Such an esplanade, from a station plaza on State street to The Green, would furnish the city with a dignified gateway and suitable sites for an imposing group of public buildings. It may be observed that the extreme parsimony with which the present new railroad station project is being carried out warrants the hope that in more prosperous times to come this splendid scheme may be realized.

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THE ARCHITECTURAL FORUM

PLATE 33



DETAIL OF PRINCIPAL FACADE

✓ UNITED STATES POST OFFICE AND COURT HOUSE, NEW HAVEN, CONN.

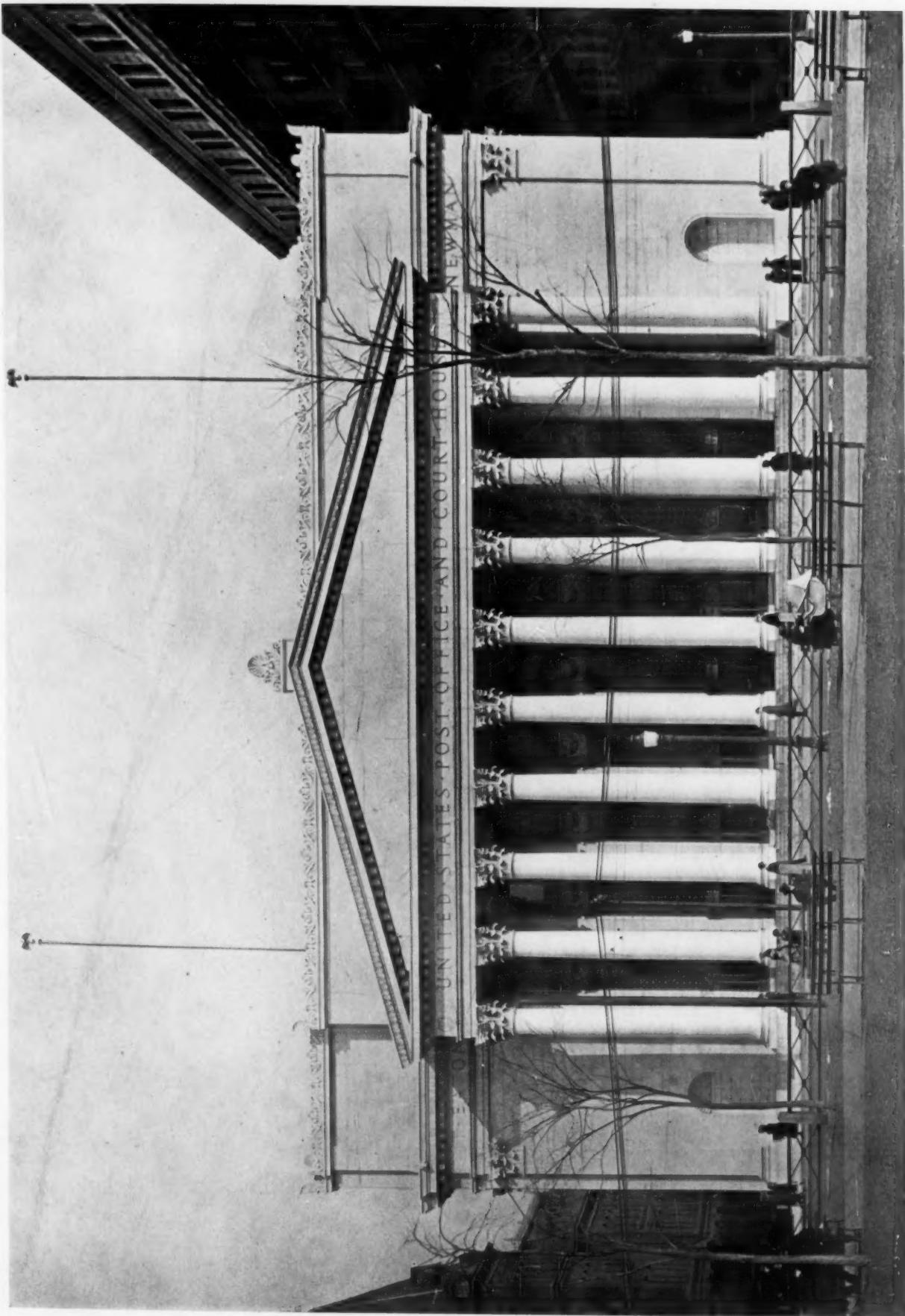
JAMES GAMBLE ROGERS, ARCHITECT



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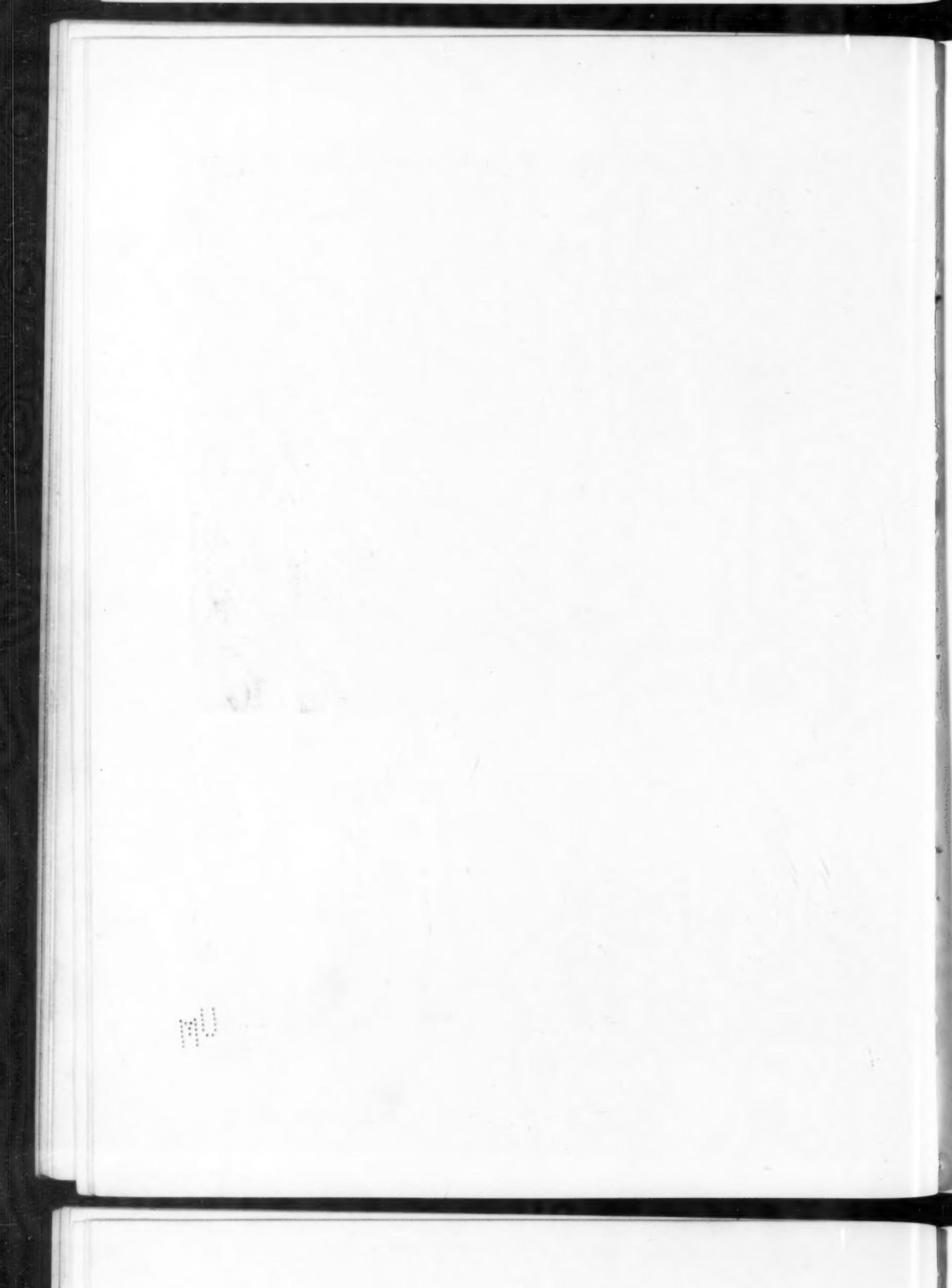
THE ARCHITECTURAL FORUM

PLATE 34



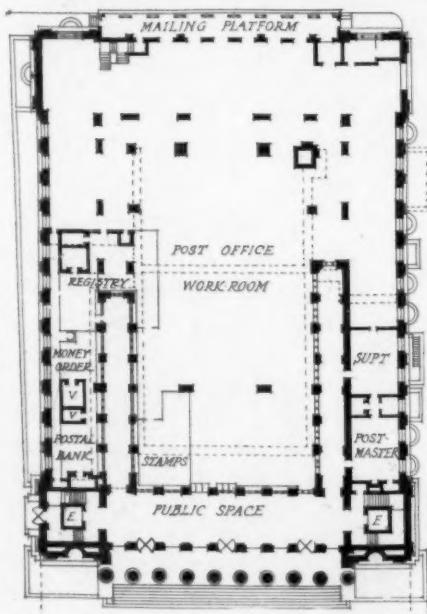
UNITED STATES POST OFFICE AND COURT HOUSE, NEW HAVEN, CONN.

JAMES GAMBLE ROGERS, ARCHITECT

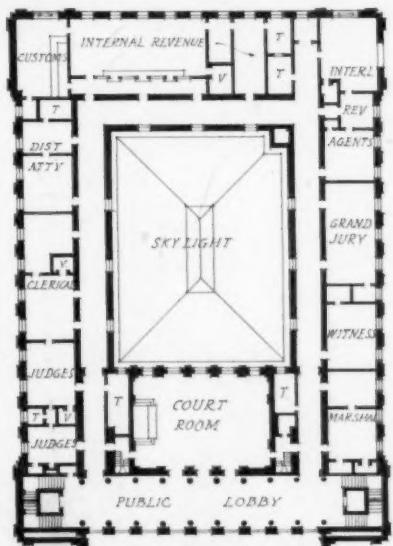




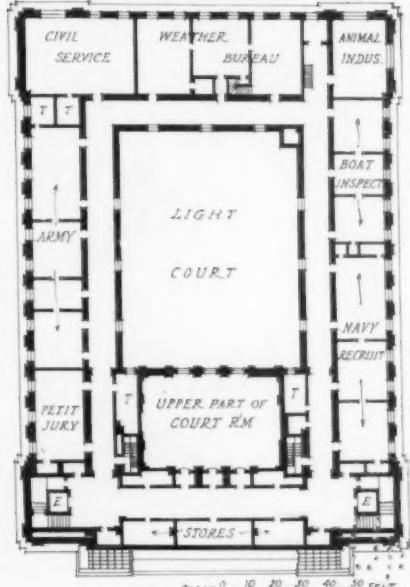
PUBLIC LOBBY ON COURT ROOM FLOOR.



FIRST FLOOR PLAN



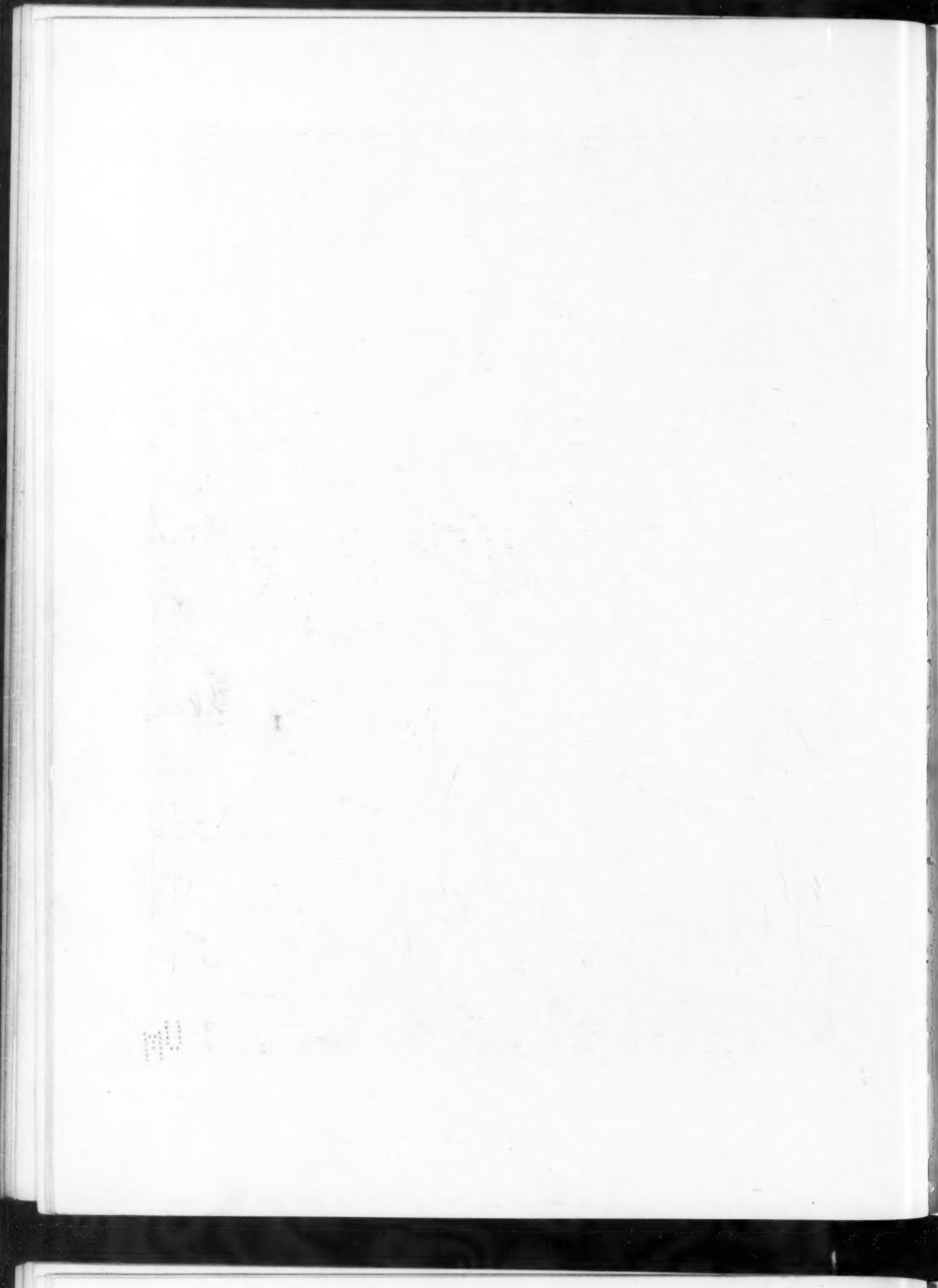
SECOND FLOOR PLAN



THIRD FLOOR PLAN

UNITED STATES POST OFFICE AND COURT HOUSE, NEW HAVEN, CONN.

JAMES GAMBLE ROGERS, ARCHITECT



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PLATE 36



POST OFFICE PUBLIC SPACE

UNITED STATES POST OFFICE AND COURT HOUSE, NEW HAVEN, CONN.

JAMES GAMBLE ROGERS, ARCHITECT

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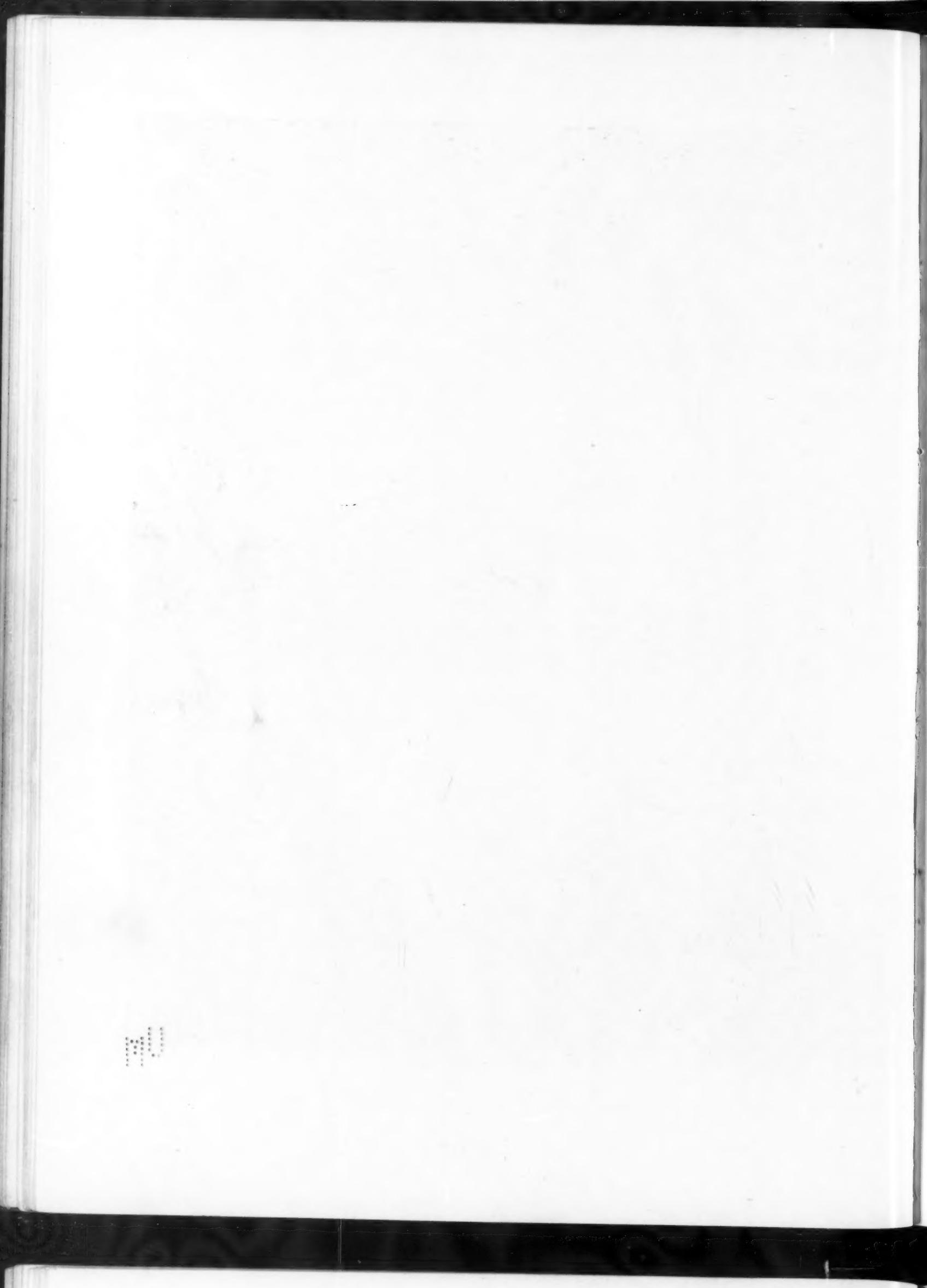
PLATE 37



DETAIL OF COURT ROOM

UNITED STATES POST OFFICE AND COURT HOUSE, NEW HAVEN, CONN.

JAMES GAMBLE ROGERS, ARCHITECT



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PLATE 38



VIEW OF PRINCIPAL FAÇADE

✓ PRIVATE SCHOOL FOR FRANK A. VANDERLIP, ESQ., SCARBOROUGH, N. Y.
WELLES BOSWORTH, ARCHITECT

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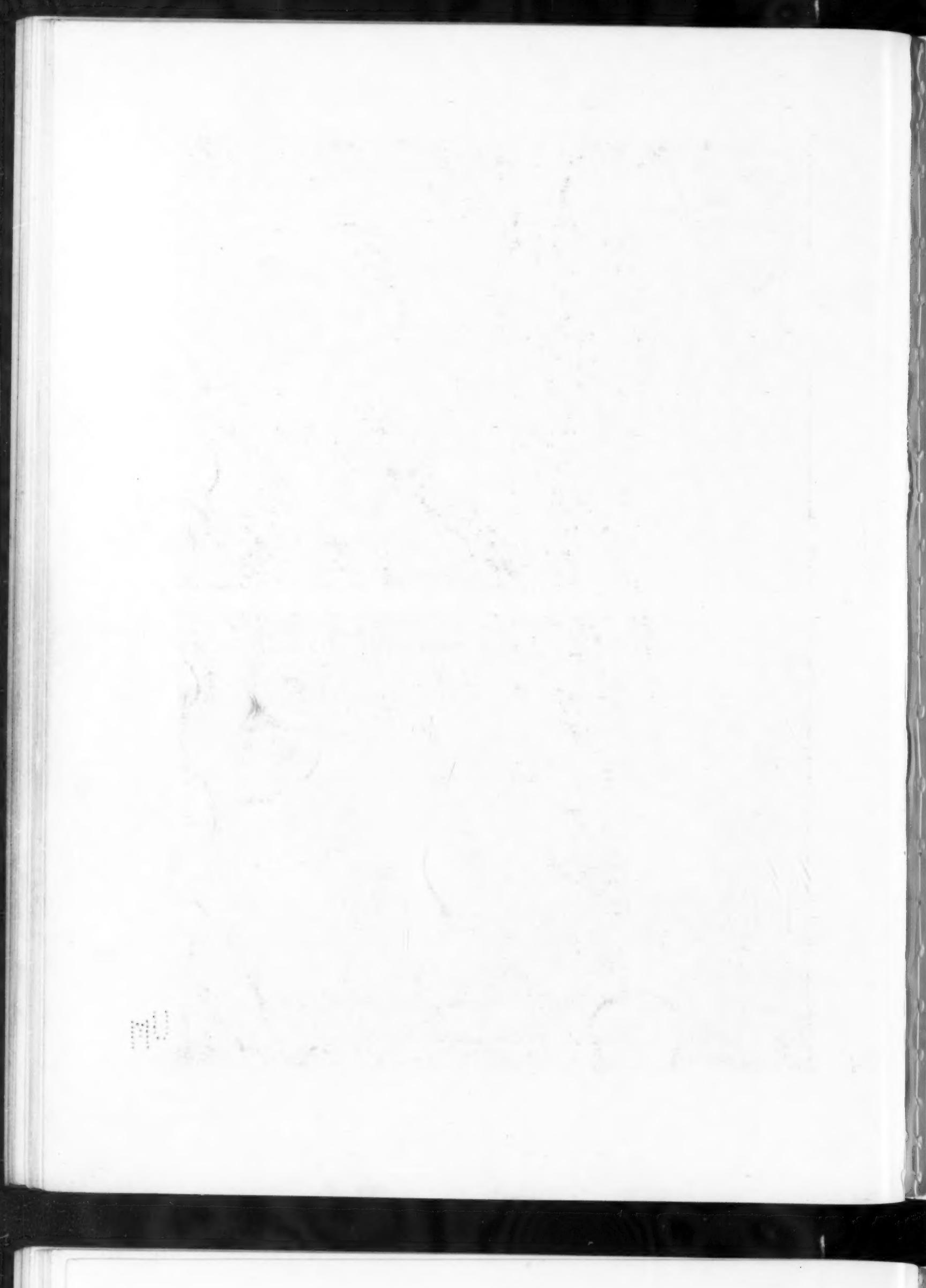
PLATE 39



DETAIL OF ENTRANCE PORTICO

PRIVATE SCHOOL FOR FRANK A. VANDERLIP, ESQ., SCARBOROUGH, N. Y.

WELLES BOSWORTH, ARCHITECT



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PLATE 40



DETAIL OF ENTRANCE GATE

PRIVATE SCHOOL FOR FRANK A. VANDERLIP, ESQ., SCARBOROUGH, N. Y.

WELLES BOSWORTH, ARCHITECT



DETAIL OF CLASS ROOM WING



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PLATE 41

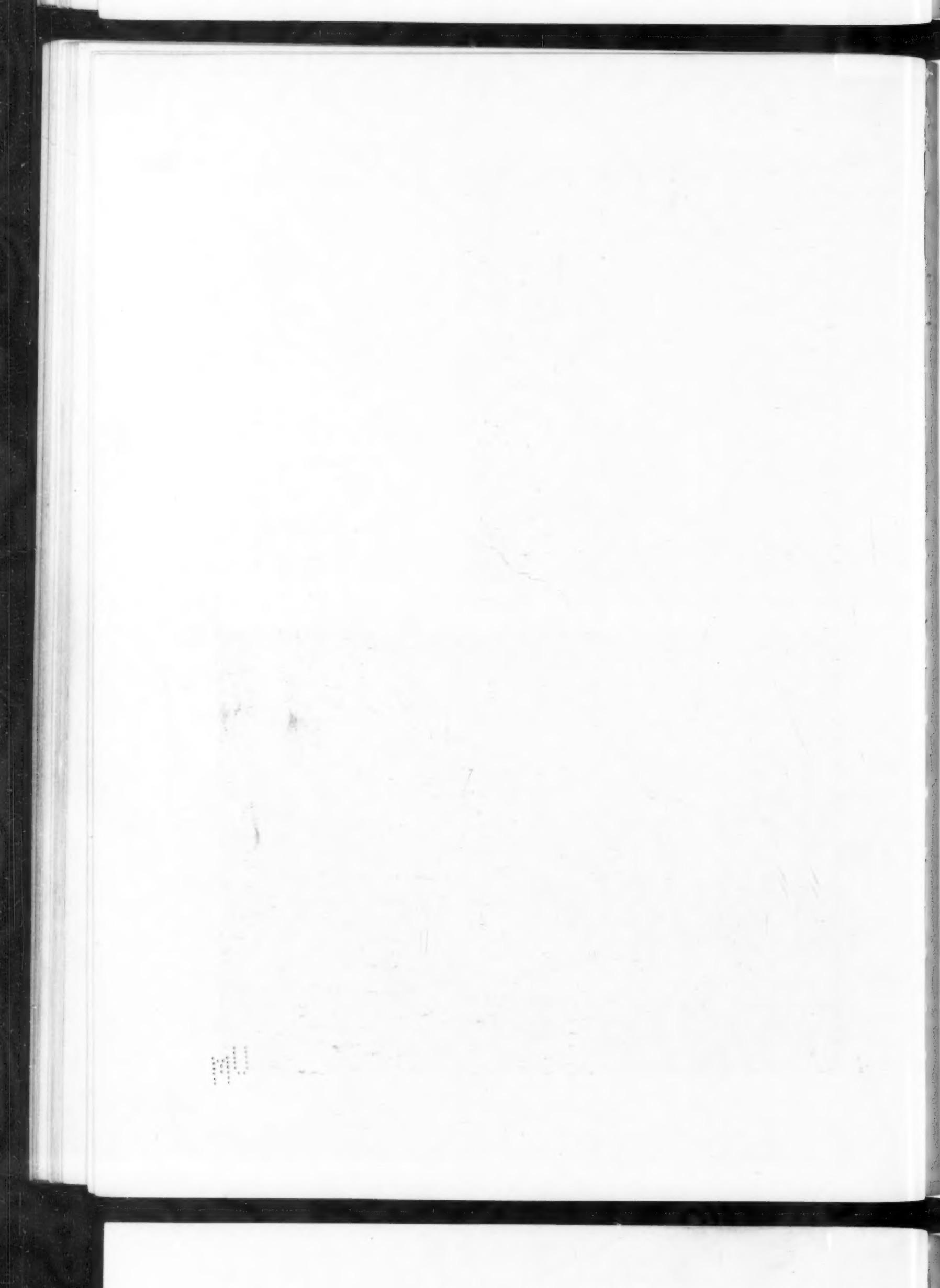


VIEW OF AUDITORIUM FROM THE STAGE



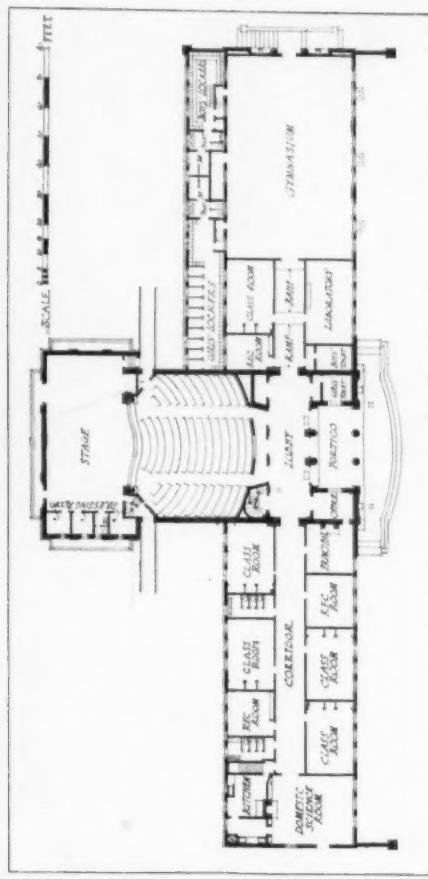
VIEW OF STAGE

PRIVATE SCHOOL FOR FRANK A. VANDERLIP, ESQ., SCARBOROUGH, N. Y.
WELLES BOSWORTH, ARCHITECT





DOMESTIC SCIENCE ROOM



FIRST FLOOR PLAN
PRIVATE SCHOOL FOR FRANK A. VANDERLIP, ESQ., SCARBOROUGH, N. Y.
WELLES BOSWORTH, ARCHITECT





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PLATE 43



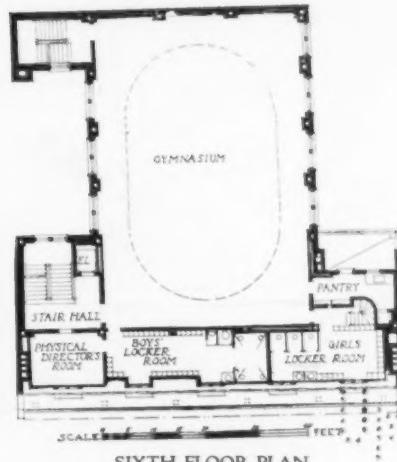
GENERAL VIEW OF EXTERIOR

GREENWICH HOUSE, NEW YORK CITY
DELANO & ALDRICH, ARCHITECTS





DETAIL OF ENTRANCE



GREENWICH HOUSE, NEW YORK CITY
DELANO & ALDRICH, ARCHITECTS



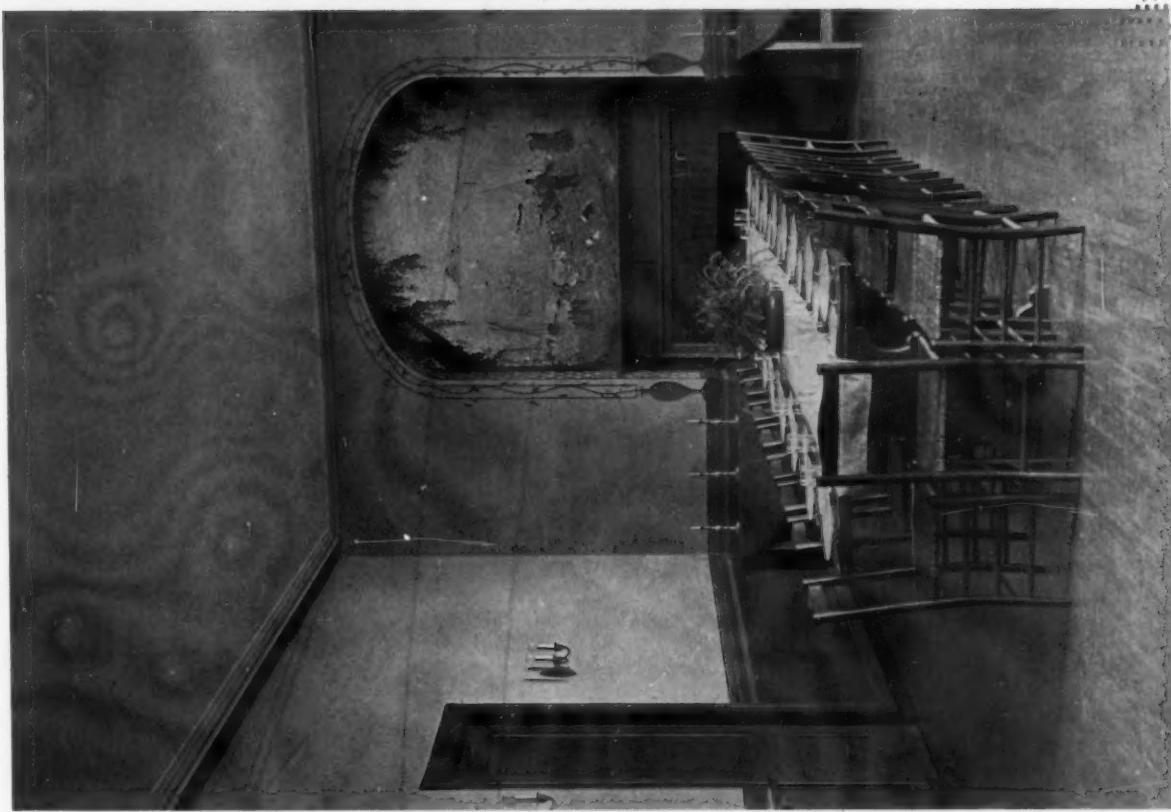


VIEWS OF FOYER HALL SHOWING WALL DECORATIONS BY ARTHUR CRISP



GREENWICH HOUSE, NEW YORK CITY
DELANO & ALDRICH, ARCHITECTS





VIEW OF DINING ROOM



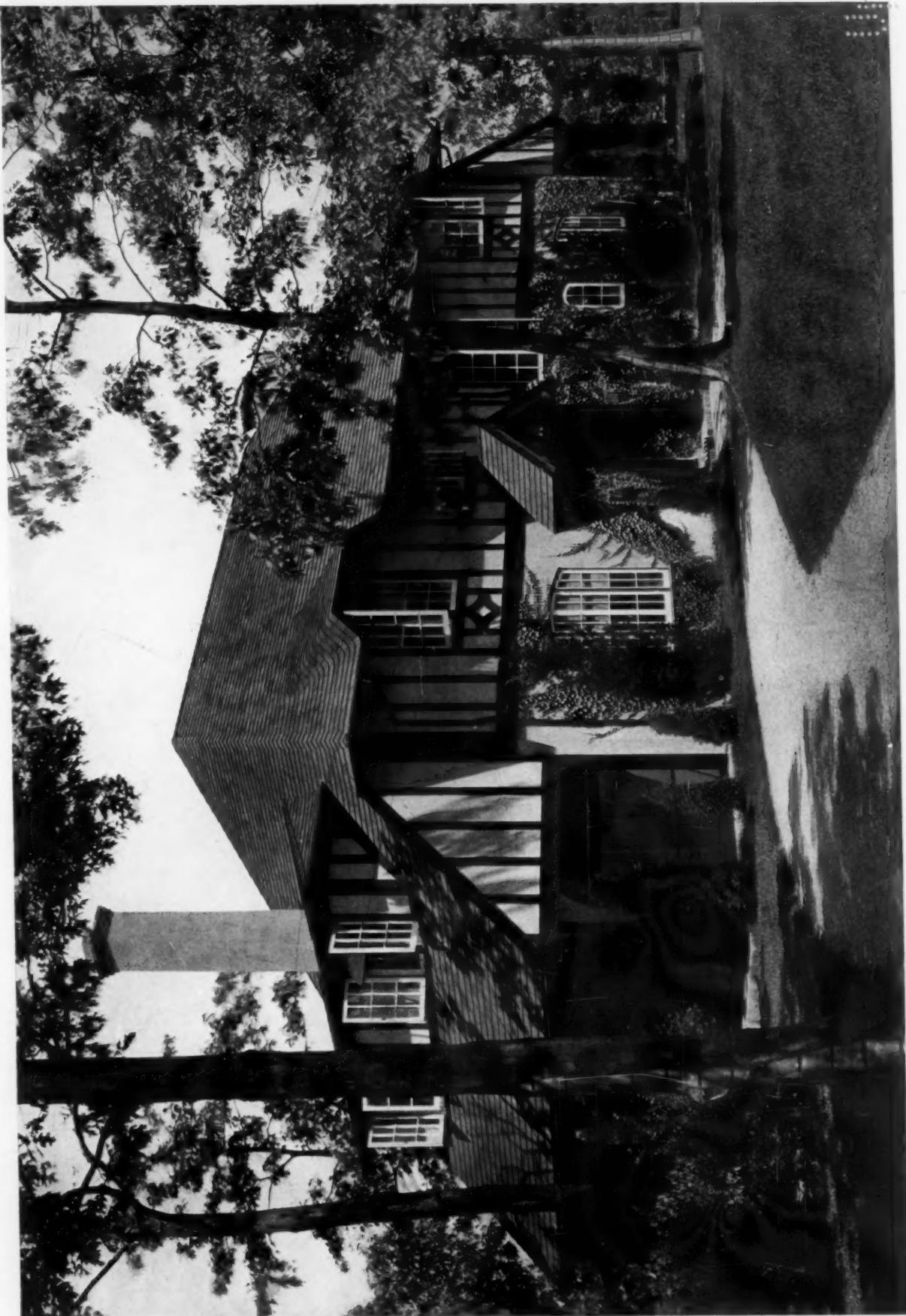
DETAIL OF AUDITORIUM

GREENWICH HOUSE, NEW YORK CITY

DELANO & ALDRICH, ARCHITECTS

DECORATIVE PAINTING BY ARTHUR CRISP

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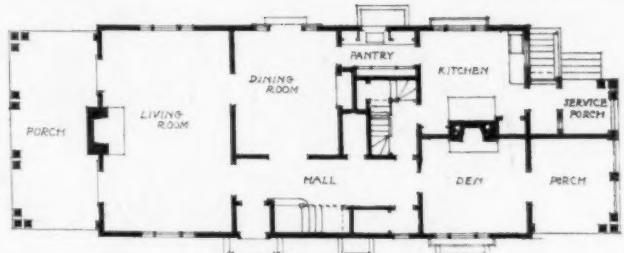


HOUSE AT BELLE TERRE, LONG ISLAND, N. Y.
TOOKER & MARSH, ARCHITECTS

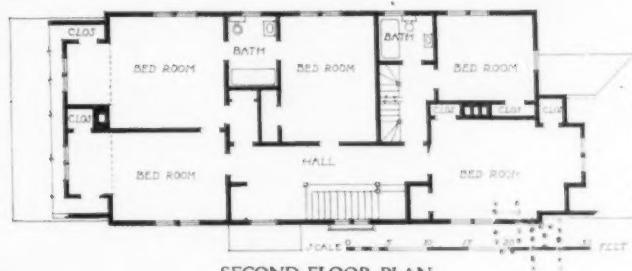




DETAIL OF ENTRANCE FRONT



FIRST FLOOR PLAN



SECOND FLOOR PLAN

HOUSE AT BELLE TERRE, LONG ISLAND, N. Y.

TOOKER & MARSH, ARCHITECTS



Description of Buildings Illustrated in the Plates

PRIVATE SCHOOL FOR FRANK A. VANDERLIP, Esq., SCARBOROUGH, N. Y. Plates 38-42. At Scarborough-on-Hudson, New York, is located the home of Frank A. Vanderlip, one of the remarkable men of the day, noted for his vivid power of imagination and aggressive energy to carry out his mental visions. He is an enthusiastic supporter of the arts and is acquainted with the best the world has produced. His ideas relating to qualities necessary to American citizenship are well known and his ability to put them into practice are perhaps not better illustrated than by the provisions he has made for the education of his children. These center about the school building illustrated, in which his ideals have been expressed. In it his children and those of the community at Scarborough, which Mr. Vanderlip has been instrumental in building up, will receive their training.

The building is situated on a sloping site with its entrance façade near the main highway. To the street it presents a long, low elevation of a single story except for the center motif which rises two stories, having a pediment supported by superimposed columns—Doric for the lower order and Ionic for the upper. The building is partially concealed from the roadway by a high stucco wall with an interesting gateway. The contour of the land is such that the rear of the building is made two stories high. The plan is composed of a deep central block containing an auditorium and stage, flanked by shallow wings given over to class rooms and gymnasium. The upper floor of the central portion is occupied by a library and teachers' room. The building faces northeast and to afford sunlight in the front row of class rooms, the wings are designed with a clerestory treatment over the central corridor, pierced with windows that admit the sunlight and also greatly aid in affording good ventilation. At the outer end of the classroom wing is a domestic science suite which is also used in providing luncheon for those children whose homes are too distant

to permit them lunching there. The right wing is largely occupied by the gymnasium with adjacent locker, toilet and shower rooms for girls and boys. Owing to a further slope of the land in this direction the gymnasium floor is 4 feet below the level of the entrance lobby, and the class room and laboratory midway between these levels, the corridor having a sloping floor to connect the various grades. The locker rooms are a few steps below the gymnasium, affording direct light to the gymnasium from windows located above the locker section. Below these dressing rooms are garage accommodations. A workshop equipped with various manual labor devices is located in the corresponding portion of the class room wing basement.

A theater is incorporated as part of the school equipment necessary in Mr. Vanderlip's opinion for the completion of a child's training. Each pupil is required to take his turn on the stage at frequent intervals, with the other children comprising the audience. The auditorium is quite



View at Rear of Scarborough School Showing Stage Loft

large and as professional in atmosphere as a city playhouse. It has a seating capacity of three hundred. The stage is 25 feet deep and is provided with all the modern equipment of mechanical devices so that regular companies of professional players may be accommodated as easily as in their own theaters. A motion picture booth is located over the entrance at the rear.

The walls of the auditorium are rough plaster carried out in the Greek spirit of polychrome decoration. The lobby giving access to the theater is particularly charming in its color scheme and is strikingly architectural. The walls are French gray, ornamented with plaster casts from the Parthenon friezes set in panels, the floor is of black and white marble tiles and the lighting fixtures of alabaster, suspended by chains of green bronze.

The school provides an ideal environment for the full development of both body and mind of the pupils and fulfills admirably a second function of community house for the entire neighborhood.

GREENWICH HOUSE, NEW YORK CITY. Plates 43-46. This building provides community facil-

ties for the people of a congested section in the older part of New York City, and for the education of boys and girls after school hours in useful pursuits. The first floor is chiefly occupied by the large assembly hall where the principal activities of the neighborhood are carried on. A small first-aid room near the entrance serves as a local dispensary. The second floor is given over to a dining room and class rooms for instruction in various crafts and household arts. Adjoining the art department is a room for pottery-glazing. The third and fifth floors, plans of which are not shown, are occupied by club rooms in the rear for girls and boys respectively. The front portion of the third floor has a common room and series of bedrooms for the resident workers and the fourth floor has additional bedrooms for them, together with a suite for the managing director and a group of two guest rooms. Each of the floors is provided with a serving pantry connected with the kitchen in the basement by a dumb waiter and each of the bedroom floors has a large trunk room and closet for linen storage.



View of Library Over Entrance, Private School at Scarborough, N. Y.
Welles Bosworth, Architect

DEPARTMENT OF ENGINEERING & CONSTRUCTION

CHARLES A. WHITTEMORE, *Associate Editor*

Details of Construction and Structural Design

By E. N. PIKE, STRUCTURAL ENGINEER

THE relation of details of construction to the design of steel has not always been given the attention it deserves, and too frequently a final decision is not reached until so little time remains that it is difficult to make any possible saving in the steel design. It is not strange that this is true. For example, there are so many types of floor construction making broad claims for economy and efficiency that even an expert may be at a loss to choose wisely. The mistake most readily made is the adoption of some construction based solely upon its apparent cost, regardless of its adaptability to all conditions it should satisfy. The requirements of present-day buildings call for an ever increasing number of conduits and pipes of all kinds to be concealed in the floor construction. It is perhaps fortunate for the peace of mind of the designer that he does not know of the almost unavoidable things that are done as the work progresses.

Like the quest for perpetual motion, there seems to be ever the hope that some one may find a construction that is cheaper and stronger than anything yet known. There is no desire to discourage endeavor in this direction, but it might be more clearly understood that, given the same limiting conditions and maintaining the same factors of safety, there can be little to choose between well considered designs that will bear careful analysis for both cost and strength. While variations in market prices, increasing labor costs and prejudices of contractors may affect somewhat the cost of construction, the architect will not go far astray who settles for himself certain forms of construction which he finds best suited to the class of work in hand and establishes, so far as he may, typical details to be used whenever applicable. These will, of course, be revised from time to time, as improvements are suggested, but they will serve as an excellent basis for structural design.

The construction of interior partitions should not be left to chance. If we assume the average

interior column to support 20 linear feet of partition, a reduction in weight of 5 pounds per square foot will save theoretically something over a ton of steel in an 11-story building, and in many cases there may be an equal reduction in the weight of beams. Taking the columns alone, it is fair to assume one-half the theoretical saving may be realized—a saving of perhaps \$40 per column. To offset this, the heavier partition should be two cents per square foot cheaper, or have intrinsic merits that make it preferable. The same line of reasoning should apply to all details of construction where any appreciable saving in weight is possible. Possibly a structural engineer is somewhat out of his province if he suggests that the heavy cornice at the roof of many buildings has little, if any, excuse except that of tradition. Frequent splicing of columns which is often done because of an apparent saving in weight is on the other hand not to be commended. Figure 1 gives an illustration of a typical column splice, and the tabulation of weights indicates that the column in long lengths should be used except under certain limitations.

Unless saving in weight exceeds 10 lbs. per ft. this splice will not reduce cost with 12' 0" story height.

Typical Column Splice, 10" Bethlehem Column

2 Pls 10" x 3 1/8" x 1' 6"	= 38 lbs.
24 Rivets	= 10 lbs.
	48 lbs.
48 Holes	
2 Ends Milled	

The limitation in height of buildings, as fixed by the various building laws, is resulting in conditions that do not, in some cases, allow economical steel design or floor construction. It is possible with modern methods and material to have in many cases one or more additional stories above the street than formerly was considered possible under the legal limit. It would be no very evident evil if the present limit of 125 feet in Boston, for example, which will permit 11 stories cramped for head room, should be revised to permit 11 stories of 12 feet each. Increased rental value may often justify the sacrifice in economy that must be made; whether anything can justify the legal handicap the owner bears is another question.

If architects are more or less bound by tradition, it is to some extent true of the structural engineer. The typical column splice in almost universal use is an example of what is done from force of habit.

There are few cases where this detail could not be reduced one-third or more. It may be heresy to suggest that in many buildings there is little if any reason why all field connections might not be bolted instead of riveted. This is especially true of buildings of monolithic floor construction with concrete surrounding the beams and enclosing all connections.

In a previous article, reference was made to the difficulty which the plumber, the steam fitter and other trades experience because too little thought has been given to their needs. It is perhaps easier to recognize the conditions than to suggest any satisfactory remedy, but it is too often the case that no thought was given to the problem. The structural designer may often excuse himself on the ground that he had no data regarding these items, but too frequently lack of experience and observation of actual construction is the reason.

The designer naturally likes to locate all beams on column centers, but the use of two channels, properly spaced to allow pipes to pass between and be enclosed in partitions above and below, would save much annoyance at very little added cost of steelwork and in reality a net saving in total cost to all concerned. Then, again, instead of placing beams directly under partitions, they may be placed sufficiently to one side to accomplish the same purpose. Cutting holes in the webs of beams, which is now done so easily with the acetylene torch, or blocking the flanges, will often greatly simplify the plumber's work. It is cheaper, of course, to do this as a part of the shop-work, but if done in the field, should be under competent supervision to prevent unnecessary or unwarranted weakening of an important member.

What is true of steelwork applies equally to reinforced concrete, and perhaps with more force, as very often it is not so evident how serious the damage is. It may be said that to provide all the data required by these suggestions would be quite out of the question in the preliminary stages of a project, especially if it is not certain to be carried to completion. While this is true, probably much more might be done if the architect and engineer should give such items more serious consideration in the early studies of the plans.

It is probable that no question gives the steel designer so much anxiety as the determination of the absolute limit of over all dimensions to which he may go, and there is a peculiar joy that comes to him if he finds that, unwittingly perhaps, he

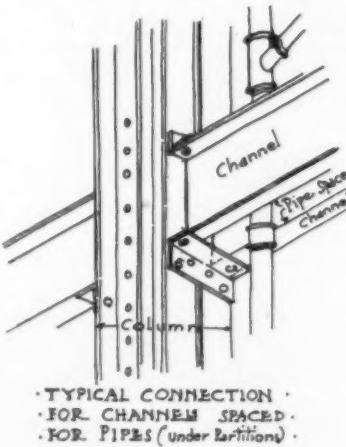
has been allowed ample space. Right here is where the advice of the engineer should be most valuable in the preliminary stages. It is frequently less embarrassing to ask him to keep within certain limits than to change contract drawings so as to provide furring to cover a projecting column or girder flange whose unwelcome presence had not been foreseen.

It may seem easy to give rules which should govern the depth of girders and trusses. If economy were the only consideration, we might say that a depth of from one-tenth to one-twelfth the span would, under ordinary conditions, be ample. To attempt, however, to fix a ratio that could not be reduced, would invite debate and suggest possibilities that should be invoked only as a last resort and by an expert. Judicious placing of columns and sometimes transferring a portion of a troublesome load at another level may frequently help to keep within the desired limits.

While it will be recognized that much of what has been said relates especially to the modern office or hotel building, it is in general equally applicable to any type of building. Many theaters have been designed and leases made before any more than passing thought was given to the possibilities of securing in the steel design the things

that had been guaranteed to the lessee. That all the recognized standards for economy must go by the board in order to accomplish results under these conditions, may explain why estimates based upon a square foot or cubic foot basis are sometimes so wide of the mark. A problem of this sort that had been given up as impossible by an engineer of no little experience was afterward solved by him; but was more an example of what ought not to be than what should be. Probably two days' time in consultation at the beginning would have made it a perfectly simple problem with no sacrifice of architectural effect, since all the conditions, except for minor details, were unusually favorable. But these seemingly minor details were exceedingly costly to secure.

Within the scope of structural design should be included reinforced concrete. Within proper limits its usefulness is unequaled. Fortunately the time is passing when it could compete unfairly with steel, due to the extreme liberty with factors of safety which some of its promoters have dared to attempt. That it has its limitations will be generally admitted. It should be recognized that when used for the entire construction of a first-



class building it usually involves the sacrifice of more or less architectural detail that the architect would be reluctant to eliminate in connection with a steel frame. In the combination of steel frame and concrete we have a constructive medium that in the hands of an unprejudiced designer leaves little to be desired. It is not uncommon to find cases where steel has been used to support a concrete section that might have been self-supporting if properly reinforced. The fireproofing of floor beams frequently requires sufficient concrete to come within this class. The steel designer is often confronted with conditions of this kind where something must be provided to tie the steel frame together in erection; economy and safety are best secured if floor and steel are designed together.

Another point that is very easily overlooked, is the case of an exterior column tied back into the building by a member that is not designed to carry any other strain. While this may be readily provided for in the floor construction, it is hardly safe to assume that it will be, and care should be taken that whatever tie is supplied, be not mistaken for a supporting beam and loaded inadvertently in a manner not intended.

The design of foundations, and especially those

requiring the use of cantilever construction or grillages, sometimes involve conditions that are not generally understood. In many buildings it must be assumed that there is to be some slight yielding of the column footings under the loads imposed; it frequently is a matter of considerable importance to determine conditions that will make this as nearly uniform as possible. For example, an interior column with a large percentage of live load must be treated differently from an exterior column carrying a large percentage of dead load. The results obtained are, of course, wholly dependent upon the accuracy with which the probable live load has been foreseen.

It is probable that the reader will admit the truth of most that has been stated; perhaps the suggestion of the frequent lack of right relation between architectural plans and structural design may call attention to a condition that can be remedied to some extent. It has to a great degree grown out of a willingness on the part of both architect and engineer to give a certain amount of service free. There is little, if anything else, so free and it is doubtful if a resolute purpose to stop this gratuity would result in pecuniary loss to any one, and least of all to our clients.

Observations on Waterproofing of Concrete

By CHARLES A. WHITTEMORE

THE subject of waterproofing concrete is as yet to many architects a closed book, but on account of the ever-increasing use of concrete, both plain and reinforced, this very important phase of construction should be more generally understood. Concrete in itself as generally used is not waterproof, but on account of the number of buildings built which are constructed with a portion below the water level, and on account of running water and springs it is vitally essential to have some method for preventing the surrounding water from getting into the structural part of the building, as well as keeping the water out of the occupied premises. In many cases, buildings are built without any special provisions of this character being made.

The study of waterproofing of cement and concrete is a very complex and exhaustive one, and may be freely accepted as a basis of wide divergence of opinion among chemists who have carefully studied concrete waterproofing, and also among other authorities who have found that scarcely any other branch of the building industry needs more careful consideration.

It will be our purpose, therefore, to consider the various types of waterproofing in more or less gen-

eral use, and without prejudice, to present to readers various items of interest on these types, leaving for their own further investigation the determining of which will best suit their needs.

The field of waterproofing falls naturally into three divisions: the integral method, the membrane method and the surface coating. Integral waterproofing consists of a powder, liquid or paste which is incorporated with the concrete ingredients when they are being mixed. Powders are usually mixed with the dry cement, while the liquids and pastes are added to the water used in mixing the concrete. Concrete leaks because it is porous, that is, it contains voids and these voids are interconnected, forming ducts which allow the passage of water. If there were no voids in a given quantity of concrete, the solid material would weigh 165 pounds, but the actual weight averages 140 pounds. Consequently the voids are 25 parts in 165 or about 15 per cent. In the field, due to improper grading of aggregates and carelessness or difficulty in placing, the voids may easily run more than 20 per cent.

The integral method is sub-divided into three definite groups: inert fillers, water repellants and chemical combinations. In any of these types, in

order to get waterproof concrete, extreme care in grading, mixing, and placing of the material should be insisted upon. This is necessary in order that the waterproofing medium may thoroughly fill all of the voids. It is possible by careful grading, mixing, and placing of the concrete to secure a waterproofing combination without the use of any other medium, but this would necessitate extremely laborious and costly operations, and in view of this fact other methods which entail considerably less expense are generally used.

A number of integrals are admitted to be only inert fillers, that is, the purpose is solely to fill the voids in the concrete without chemical reactions. Hydrated lime falls in this class and has had a large use. It is a valuable addition to concrete not because it is a waterproofer in itself, for it really absorbs water and is a solvent, but because it makes the mass "work" or slide easier, which is important in completely filling the forms.

Clays also are inert fillers, but clays have a weakening effect on concrete. In lean concretes they have assisted in filling voids, but they are ineffective in the richer concretes. Fine sands and fine feldspar are also inert fillers used to fill voids with varying degrees of success.

The second large class of integrals are the "water repellents." These have principally as a base hydrated lime or magnesia lime to which has been added a small percentage of fatty acids. The lime, of course, is inert, but the acids, in most cases stearic acid, react with the lime to form a lime soap, which is not readily soluble in water and which also tends to repel the water.

The liquid and paste waterproofings stand a better chance than the powdered integrals of being mixed through the mass, but the ever-present poor workmanship with its attendant dry batches and separation of coarse and fine aggregates nullifies in large measure this advantage. In this combination of liquid and paste waterproofing type there is a distinct chemical reaction which takes place with the cement which produces a new chemical composition having distinct waterproofing features. Not only does this combination fill the voids, but it also acts in some cases as a new chemical which assists greatly in the hardening of cement.

Integral waterproofing has been used where distinct water pressure is noted with varying results. It must be borne in mind that in this method, as with any other method, the integrity of the wall itself is of prime importance, as any cracks developing in the walls will obviously destroy the waterproofing value. It is true that the cracks can be repaired and the wall restored to its original tightness, but the first consideration in waterproofing is to have some method which will eliminate all

these difficulties. As yet, this problem has not reached its ultimate solution.

It is also necessary with integral waterproofing, as with any other method, that one must be particularly careful about the "day joints," that is, where the work of one day leaves off and the work of the next day begins. In such cases the surface of the previous day's work should be carefully prepared by picking, scouring or washing with an acid.

Membrane waterproofing consists of a seal coat surrounding the structure to be waterproofed. It is made up of alternate layers of felt or paper, and tar, pitch or asphalt, applied on the finished structure. To be successful the concrete must be dry and preferably warm. First, the hot liquid is put on; this later cools and solidifies; while still soft a layer of the membranous fabric is applied. This forms one ply. Usually three to five plies are required. Ordinarily membranes are put outside the walls and under the floor. In order to get at the outside of the walls additional excavation is required and consequent refilling is necessary, but the principle involved is to keep the water from getting into the concrete at all.

One serious objection to the membrane that usually does not apply to the inside surface coatings is the trouble involved in repairing a leak. Leaks are due to a variety of causes, stones breaking the seal when thrown back as refill, hot pipes or hot water near the membrane melting the tar or asphalt, unequal settlement of the structure, etc. When the leak is noticed, it is a question where to locate the trouble as the break in the seal may be opposite the dampness, or quite likely it is far removed, and the intruding water has worked between the membrane and the concrete to the point where the concrete has sufficient voids to allow the water through. It is difficult to repair the leak in the membrane method as well as to locate the cause of the trouble. Extremely careful workmanship is of prime importance in installing this system.

One advantage of the membrane over most of the other systems is the amount of elasticity in the felt or paper. This enables the membrane to bridge over minor cracks, though on large cracks such as those due to settlement, the fibers of the fabric may be stretched too far, thus breaking the sealing pitch. The common impression is that the substances between the fabric give the elasticity. These substances are usually asphalt, petroleum, residuum or coal-tar pitch, which are not extremely elastic at ordinary temperatures when they are solids. Fabrics are therefore used to provide the necessary elasticity. If proper attention is given to the construction of expansion joints in such work as retaining walls, tunnels, etc., the element of elasticity is not so important.

In the "bitumens" class there are included asphalts, heavy petroleum oils and wood tar. These are the articles most used in the membrane method above described, where the use of fabric is resorted to in order to give them some elasticity, as they are solid at ordinary temperatures. When applying these compounds the surface should be dry and it is better to heat them upon application. Where the coating is exposed and appearance counts, the dark color may be objectionable. This difficulty may be readily overcome, however, by painting and finishing the surface with a good paint, which will not chemically react with the waterproofing medium.

Paraffins are watertight under ordinary temperature but under higher temperatures they melt and lose their effectiveness in filling the surface pores of the concrete. When applied to a wet wall paraffin will not adhere.

Compounds of petroleum oil give water repellent surfaces due to the oil particles getting into the surface pores. When applied on the side adjacent to the water pressure, this repelling action assists in keeping out water, but on the side from the water, a slight head may force the oil out of the surface pores. A few years ago the United States Government recommended this form of waterproofing even under fairly high pressure, and the writer knows of one building which was waterproofed in this manner a number of years ago. As yet no visible defect has appeared in this building.

Soaps have long been used as waterproofing coatings. In one method which uses soap in conjunction with alum, the concrete surface is first washed with hard or soft soap solutions following which is applied a solution of alum. This method depends for its success on the formation in the surface pores of insoluble soaps.

In connection with the discussion of surface coating, it should be borne in mind that, many of the integral compositions can be used in the cement mixture which is applied as a surface treatment. There is an advantage in this system in the fact that the surface treatment put on the wall, has the same chemical character as the wall itself and a reasonably satisfactory result should be expected.

The surface troweling, however, must be carefully done as too much or too little troweling is detrimental. In this surface treatment the walls should be picked so as to get a good bond.

This surface may be used on floors as well as on walls, but a wearing surface should be applied after the waterproofing is finished.

A dozen or so years ago it was found that a finely pulverized iron would oxidize on a concrete surface, in the presence of salammoniac and

water. The particles of iron are carried into the surface pores by the water and oxidization slowly ensues.

In changing from pure iron to an oxide the particles swell, complete oxidization practically doubling the size of the particles. By so enlarging, the iron oxide fills and becomes solidly embedded inside the surface pores, a number of brush applications of the iron are required to fill all the pores, the number depending entirely on the condition of the surface. Each coat has to be well oxidized before the succeeding one is applied, otherwise the additional swelling would be apt to disrupt later coats.

One criticism is that the iron simply rusts and soon falls away from the concrete. While the iron does go first into the rust stage, which is a yellowish red, it soon passes on to the reddish brown stage, when it is fully oxidized. The chemical analysis at this latter stage shows Fe_2O_3 plus some H_2O . It will be noted that this is the same formula as the iron called limonite, which is exceedingly resistant to the action of air and water. It seems, therefore, that the resultant surface is an iron ore, an entirely inert substance capable of as great life as the concrete itself with which it has become permanently embedded.

Objection to the reddish oxide color is obviated by the use of a cement wash, containing a small amount of iron, over the pure iron coats. Cold-water paint of any desired shade may be applied with success over the pure iron coats. On walls the coating is left exposed, but on floors due to the thinness of the coating, which is only as thick as one's fingernail, it is put under the granolithic finish.

A particularly important feature of the iron system is that it can be and has been a number of times employed successfully on walls and floors that were running with water and were chilled. Dampness and cold do not affect the application, whereas in many of the coating systems and in the membrane these elements make it difficult or impossible to succeed.

In connection with the waterproofing of concrete it is well to consider that in order to obtain a thoroughly satisfactory cure the architect should carefully weigh the advantages of different types.

The claims of the various methods are strong and in many instances undoubtedly each different system could prove its own worth, but there are occasions where one system, due to unfortunate circumstances might fail and another might prove itself eminently satisfactory. There is no doubt but that with the increasing use of concrete a still further advance will be made in the waterproofing of cement.

Expansion Joints in Masonry

By FRANK H. CARTER, Assoc. Mem. Am. Soc. C.E.

HAVING occasion to investigate the matter of expansion joints in masonry sometime ago, the writer collated what information he could find on the subject with particular attention to the matter of expansion joints in masonry which is designed to hold water.

The five most interesting and perhaps the most nearly practicable types are shown in the illustrations below.

The expansion joint used on the Waterbury, Conn., pressure sewer is shown at upper left. An ordinary dovetail type of joint was made with concrete. This was rendered waterproof, acting somewhat as a bellows by means of the insertion of a piece of sheet lead $\frac{1}{32}$ inch in thickness and weighing 2 pounds per square foot.

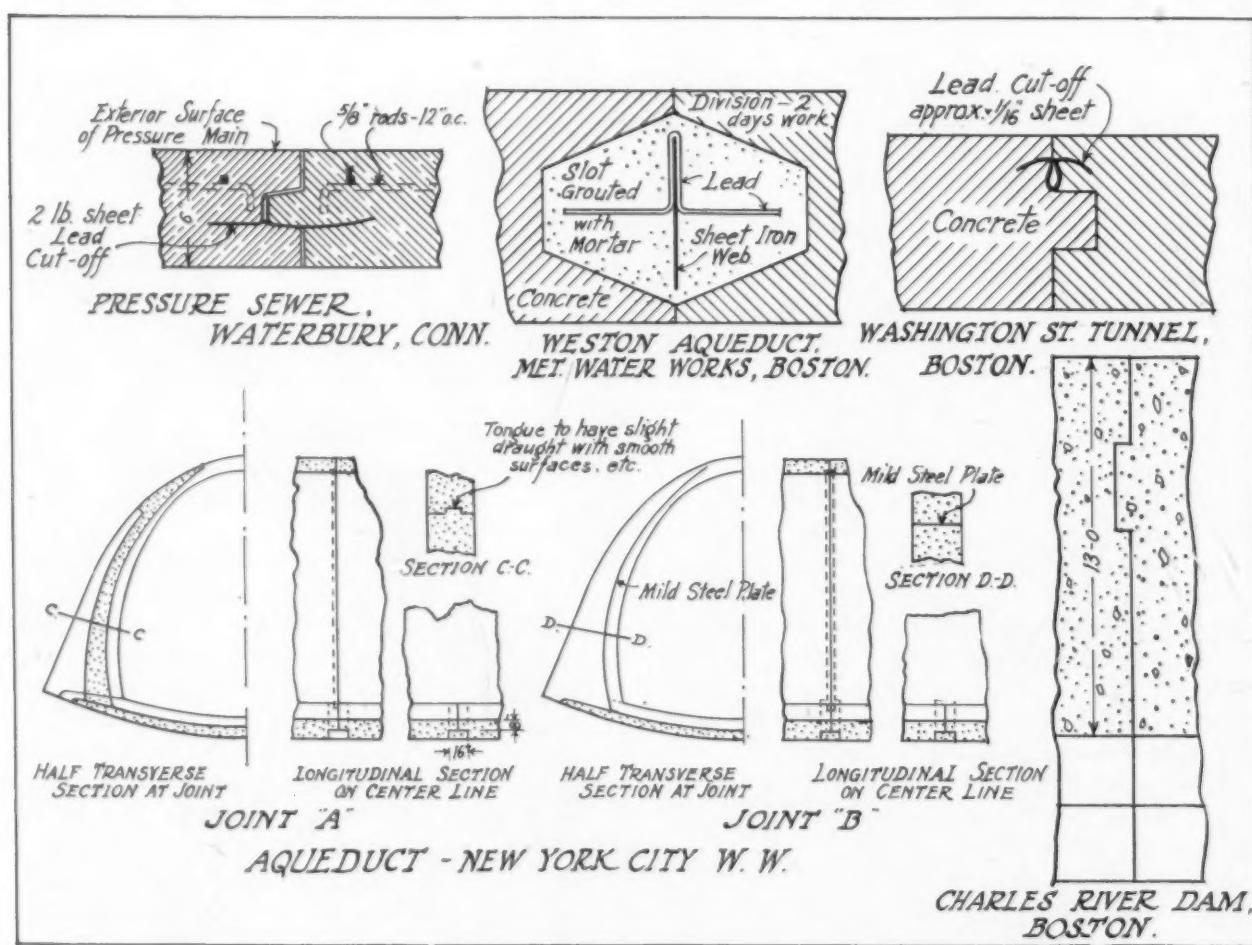
On the Weston aqueduct near Boston, Mass., the joint was formed in the concrete with a piece of sheet iron over which a bellows-like piece of sheet lead was folded and both in turn surrounded with mortar grout.

On the Washington street tunnel, Boston, a dovetail joint similar to the Waterbury sewer joint was used except that the $\frac{1}{16}$ -inch sheet lead cut-off was inserted to one side of the middle portion of the joint.

On the New York aqueduct an elaborate type of joint with a mild steel plate as a further preventative against leaks was used.

On the heavy and massive section of the Charles River dam at Boston, Mass., a dovetailing joint filled with asphalt was resorted to with reported success.

The writer is not informed as to the success attending the construction of the first, second and fourth joints, but understands that the third type used in the side wall of a sewer, which in turn formed the side wall of the Washington street tunnel of the Boston subway system, in a location where any small leak would at once be only too apparent, has proven all that could be desired in the way of water tightness.



The Post-War Committee on Architectural Practice

AN OPINION ON COMPETITIONS

By EGERTON SWARTWOUT

Editors, The Architectural Forum: Only one thing is certain about a Convention of the American Institute of Architects, and that is that some attempt will be made to change, alter or otherwise improve the Competition Code, and the Fifty-second Convention was no exception to this rule. A proposition was brought forward by one of the Chapters and referred to the Post-War Committee, which shows on the face of it such a complete misunderstanding of what the code really means, and such a lack of appreciation of the evils which it attempts to correct that it is inconceivable the Post-War Committee will give it any serious consideration. At the same time as it represents a misconception which is rather widely prevalent, it is perhaps worth while to consider it for a moment here.

It is, in effect, a proposition that all competitions in which no remuneration is paid to the various competitors shall be considered as falling under the present code; but that if the competitors are paid, then the code does not apply—in other words, the Institute would be then put in the position of saying that as the result of long experience it has become convinced that unrestricted competitions work unfairly to the interests of the client and the architect, and that therefore, after much thought the Institute has formulated certain rules for the guidance of its own members that will safeguard the interests of both parties, and that it is unprofessional for any member of the Institute to enter an unapproved competition; but if, on the other hand, the client is willing to pay the competitors, the Institute will forget its rules of fairness and allow the same old scramble that was such a disgrace in the past. A fine proposition truly to be put before the Post-War Committee, which, as I understand it, is supposed to have been formed to make architecture safe for democracy. A client who cannot afford to pay his competitors is bound by certain rules, but the richer client can have everything his own way.

Of course I don't for a minute mean to imply that the gentlemen who proposed this change looked at it in that way at all. They probably had not considered the matter very carefully, and were governed entirely by a feeling of dissatisfaction with the restrictions of the code when applied to smaller propositions or to such cases where one or two architects are asked to submit sketches for some operation in which the owners are unwilling, through ignorance of the real conditions, to comply with what they believe to be reflections on their right of choice.

It is also probable that the proponents of this proposition had either forgotten or perhaps had never been cognizant of the real conditions which led to the adoption of the Competition Code; and yet the code, as it at present exists, is a comparatively recent insti-

tution, which was gradually formulated by the most prominent and experienced men in the profession in this country, to correct certain abuses which were becoming rapidly worse and worse, and which threatened seriously the whole structure of architectural practice.

The principle of competition has been inherent in architecture since the very beginning. It has long been an established method in school instruction, and as far as our records go, the commissions for most of the great buildings in history were awarded as the result of some form of competition. Glen Brown in his History of the Capitol at Washington gives an account of the competition that was held for that building, and there are in existence interesting old drawings that were submitted for various other public and semi-public buildings in the early period. One of the first large competitions in recent times was for the Cathedral of St. John the Divine, and this was followed by those for the New York Customs House, the Public Library and various Government competitions held under the Tarsney Act. In general these competitions did not depart radically from the code as it is now written. There was a definite program carefully prepared, and the jury was generally composed of architects, and there was a distinct effort on the part of those in charge to promote perfect equality and fairness, both to the competitors and to the owners.

Gradually, however, there had sprung up in the architectural profession a vicious practice of submitting sketches and schemes without remuneration and with only a vague hope of securing the commission. In general, these were either for small public or semi-public buildings, such as schools, banks, libraries, etc., whose directors were either unwilling to accept the responsibility of a direct appointment or who, through the urgency of conflicting claims, felt it necessary to ask several architects to submit sketches; or else for purely private operations, for which a competition was not only unnecessary, but most undesirable, the action in the latter case being usually due to the architects themselves. If a commercial building or even a fair sized house was to be erected, the owner was bombarded with requests to submit plans from every architect who knew him slightly or from many who didn't know him at all, and he naturally concluded that he was doing a favor to the architects by allowing them to make more or less elaborate drawings, although it often afterwards turned out he had already made a decision, and that some architect had the working plans half completed.

When I began independent architectural practice in 1901 this system was almost universal. I remember a particularly distressing experience of my own. A good friend of ours, one of the directors of a certain

bank, asked us to submit some sketches for their new building. He said that the committee was undecided as to the scheme, and that all that was necessary was some fragmentary pencil sketches that would show our idea of the type of building the bank should build. We gladly submitted what we thought was a well presented scheme, and were afterwards informed that the commission had been given to a local architect who, with the assistance of a contractor, had submitted a large and very complete plaster model at three-quarter scale of the entire elevation. I remember another instance in which we submitted some very large and elaborate drawings, also for a bank, and discovered not more than two or three weeks after our drawings had been sent in that the contract for the erection of the structure itself had been let, and that at the time we had been asked to submit drawings the bank was actually in possession of complete working drawings, which the board of directors had unanimously agreed to adopt. One or two other experiences along this line convinced us that from a business point of view the unrestricted competition game was not worth the candle, and that those who voluntarily submitted drawings could be divided into two classes: the first, a very small class, who had been definitely promised the job and who only submitted drawings as a matter of form; and the second, a very large class, who wasted an enormous amount of time and money on drawings, without a Chinaman's chance of securing the commission.

There was also an occasional instance in which the owner had the best intentions in the world, and did his best to have everything done with perfect fairness and equality, but in which totally diverse information was given to the various competitors, in some cases by the same official. I can again illustrate this point from an experience of my own. We were awarded the commission for a certain building, and I had a long interview with the chairman of the building committee, who told me in detail what were the general requirements and what his ideas were on the subject, and we prepared sketches along these lines. On presentation of the sketches a week later I was told that the day after I saw him he had an interview with a friend of his and had radically changed his ideas, and that he intended to let me know, but had forgotten to do it, and that what he really wanted was an entirely different building. Now, suppose this information had been given not to one man, but to two competitors, each one would have gone away convinced that he had the right information, and yet the first man would have no chance whatever when the award was made.

It was to correct these evils surrounding competitions that the code came into existence. The Institute realized it could not say to the owners that they must conduct their competitions along certain lines that the Institute suggested, because that would be an infringement of personal rights; but the Institute could say to its own members that a state of competition existed when two or more men submitted drawings for the same project at the same time, and that no mem-

ber of the Institute could enter a competition which did not have the Institute's approval. The formulation of the code was a slow and gradual process naturally, and was subject to rather frequent revisions.

The code was primarily designed to afford perfect fairness to the owner and to the competing architects. It was decided that the client was in need of a professional advisor, who could guide him in the selection of competitors and in the outlining of the scheme, and who could formulate this information in a manner that would be intelligible to each competitor. It was felt there should be a jury composed either entirely or largely of professional men. It was felt there should be absolute uniformity in the information given to the competitors, and uniformity in the submission of drawings, and that absolute anonymity should be preserved. One of the most important things in the code was that the program itself constituted an agreement between the owner and the competitors that one of the competitors would be selected as architect of the building, and this idea has gradually been expanded until most programs now contain a definite contract between the owner and the successful architect. The value of this document agreed on in advance cannot be overestimated. Until a few years ago there was also a requirement that the fee was to be 6 per cent, and that all engineering services ought to be paid for by the owner. This requirement has, I am sorry to say, been withdrawn, the argument given for this withdrawal being that competitions were often held for buildings for which 6 per cent was either too high or too low, and that conditions varied in different parts of the country, that the code was supposed to be an ethical statement, and a sordid mention of percentage should not be a part of it. This argument is all very good in its way, but like many other arguments based on ethical principles, falls in the test of practical experience. This is particularly so in the case of competitions for public buildings. There is usually a building committee or commission, the members of which are apt to be political appointees or public officials *ex officio*. These gentlemen invariably take the stand that it is their duty to their constituents to have the building designed at the lowest possible rate. They say, with some justice, "Why should we pay 6 per cent when John Smith from our own town is willing to do it for 5 per cent, and Tom Jones will cut the rate to 3½ per cent? If this was our own money, we would, of course, look at it from a broad point of view and pay you gentlemen any amount that you say is right; but we cannot go back to our constituents and stand accused of the charge of extravagance. Of course," they add, "if you can show us some documentary evidence — some clear statement — that we will be obliged to pay 6 per cent or else forego the participation of the most prominent members of the architectural profession in this country, why then we will be entirely willing to agree to 6 per cent, and we will allow a certain amount for engineering services and traveling expenses; but if you cannot show us certain definite rules, we will be obliged to take the lowest rate." This has happened to my own personal knowledge

several times in competitions for public buildings, and I am afraid is bound to happen still more often in the future, and I sincerely hope that some method will be arrived at to obviate this very serious difficulty — by what means I cannot suggest here, possibly some schedule which would apply to different conditions in different sections of the country.

It was, as I have said, to correct the evils caused by the wild scramble for work and the injustice often done by unrestricted competitions that the competition code came into being. In considering it, let us freely acknowledge that it is an impossibility to frame a code that will meet satisfactorily every condition, or which will be suitable for every section of the country. The code as drawn is not perfect, perhaps, and the form in which it is issued is entirely too cumbersome and formidable to meet ready acceptance on the part of the client. To my way of thinking it could, and should, be simplified. The whole matter could, I think, be compressed into one short page, which would briefly explain the reasons for its adoption and the few fundamental principles which are essential. If this simplified form were accompanied by a personal explanation, I do not think there would be one case in a hundred in which the owner would not see the fairness of it and promptly agree to the Institute's requirements. After the owner has agreed the present code and circular of instructions would be primarily for the guidance of the professional advisor.

The essential requirements are really very few. First, there must be a professional advisor; in other words, it is recognized that no one but an architect is capable of expressing the wishes of the owner and the particular requirements of the building in a way that will be intelligible to the competitors and to the jury. It is conceivable, of course, that some laymen might be perfectly competent to write a satisfactory program, but the code cannot recognize particular instances, but must be general in character.

Secondly, there must be absolute uniformity in the instructions given to every competitor, and there must be absolute uniformity in the presentation of the scheme by each competitor. Certainly this requires no argument. It is the only way in which perfect fairness can be obtained. Third, perfect anonymity must be preserved. Here again no argument is possible. Fourth, the jury should contain at least one professional architect, who preferably should not be the professional advisor, and the jury should consist of at least three members. It has been found from practical experience that no jury of laymen is capable of understanding the intricacies of a plan, and the presence and vote of some professional man is necessary. It is generally advisable not to have the professional advisor a member of the jury, for the reason that it often happens in the preparation of the program that he has formed a preconceived idea of the solution, and does not come to the judgment with an open mind. Fifth, the owner must employ one of the competitors as architect of the building, and the program should contain a form of contract between the owner and the successful bidder. This means that if

the owner decides he must hold a competition, and does hold it under Institute rules, he cannot, after the competition drawings have been received, refuse to award the commission to any of the competitors, and declare the competition null and void. In brief, that is all there is to the celebrated Competition Code. The rest is mere amplification, and there is nothing whatever in these simple requirements to which any owner can reasonably object. I personally know of no case in which an owner has objected, provided the matter was put before him in a simple, straightforward manner. On the contrary, I know of at least a dozen cases in which a perfectly hopeless disagreement has been quite easily overcome by a personal interview from some one qualified to explain the position fully. In order to lighten the burdens of a small operation, many of the Chapters have standing committees, and provide at little or no expense competent persons to undertake, in simple cases, the task of professional advisor and juror.

Competitions exist from two causes: first, because in most operations of a public or semi-public nature it is obviously impossible to make a direct selection of an architect, without incurring a certain amount of criticism, which all committees are anxious to avoid. In such cases I have found that the committees usually welcome the advice and backing of the Institute. Second, because the owner is unwilling to take the trouble to make proper investigations and determine to whom he shall award the commission, or being a busy man, the easiest way is to allow any one who has made application to submit a scheme. In this case, if the owner does not wish to take the trouble to make a direct selection, he should be willing to give proper consideration to those who are willing to relieve him of this trouble.

My criticism of the competition code, based on somewhat extended experience, both as competitor and as professional advisor and juror, is that there should be a simplified preliminary statement, as outlined above, and that more definite instructions should be given for the guidance of the professional advisor and jury. In my opinion, much of the dissatisfaction caused by competitions has arisen from the fact that the professional advisor was neither a practising architect nor had any previous experience in competitions. The programs are apt to contain cubage requirements that are quite impracticable and which result from a lack of experience in such matters, and the requirements are either so minutely and metriculously given, that no choice in the selection of a scheme is allowed the competitor, or else they are so loosely drawn that no competitor knows exactly what the essential features of the structure really are. Then, too, it often happens that although the professional advisor is told by the owner that certain requirements are essential, he has the opinion that these requirements should be carefully concealed, so that each competitor can use his own judgment and arrive at his own conclusions. This often results in the elimination of a number of schemes that are really better than the winning design, which has been selected solely because it con-

tained an idea of the owner's that had not been expressed in the program.

The professional members of the jury are all too often men who have had little or no experience with competitions and are prone to make a decision based on certain ideas of their own, or on suggestions which have been unconsciously conveyed to them by the owner or by the professional advisor, and not on the requirements as set forth in the program. The jury members should clearly be made aware of the great responsibility which rests on them, and that they are in a similar position to a jury in a court of law. Their decision must be based entirely upon the evidence and nothing else. They must understand that the competitors have no knowledge of the requirements other than that contained in the program, and the judgment of the competitive designs must be based on the program alone.

And again, another point which, while it applies to the judgment of all competitions, applies particularly to the larger competitions held for public buildings, is, that a decision involving a commission based on

millions of dollars is placed in the hands of a few men, and this decision, while honestly made, is one which would perhaps be reversed by another jury, equally competent, on the next day. Too often personal taste and predilection govern in preference to the weight of the evidence submitted. It always has seemed to me that in the case of a large competition it would be a very desirable thing to have, say, three juries of three men each who would render separate judgments. If these three judgments were identical, the matter would be absolutely settled; but if, as is possible, each jury made a different selection, then the three juries would meet as one jury of nine, and arrive at the final conclusion. This method is a little more cumbersome perhaps and possibly more expensive than the one usually adopted, but it seems to me that the advantages to be gained from it considerably outweigh the trouble and expense. I would very much like to see it tried.

EGERTON SWARTWOUT.

New York, June 5, 1919.

SECOND FLOOR PLAN:

- SLEEPING PORCH
- BED ROOM
- BED ROOM
- BATH
- BED ROOM
- BED ROOM

FIRST FLOOR PLAN:

- SUN ROOM
- DINING ROOM
- LIVING ROOM
- PANTRY
- KITCHEN
- ICE
- HALL
- TERRACE

SCALE OF FEET: 0 5 10 15 20 30 40

HOUSE OF JOHN H. MOONEY, ESQ., ST. LOUIS, MO.
GUY STUDY, ARCHITECT

ARCHITECTURAL & BUILDING ECONOMICS DEPARTMENT

C. STANLEY TAYLOR, *Associate Editor*

Protecting the Owner Under a Cost-Plus Building Contract

OWING to the unusual conditions in the building material and labor market a strongly developing phase of the contractual relations between builder and owner leads to the necessity of more serious consideration of forms of contract and the possibilities of the cost-plus method of building.

During the past few weeks it has become evident that in practically every section of the country contractors are refusing to give guaranteed prices on building operations or are introducing a protective safety factor which is making building costs prohibitive. The question of the cost-plus building contract has become insistent and in many localities is past the stage of argumentation. The sensible solution of the problem, therefore, is to analyze the cost-plus method of building to see if it is not possible to develop certain lines of protection for the owner so that injustice will be worked on neither side, and better building service under unusual conditions be made possible.

Digressing for a moment to analyze briefly the conditions in the material and labor field which confront the contractor who is asked to give guaranteed prices to-day, we find that in spite of unstable labor conditions, strikes, lockouts and various attempts at price fixing in the material market, there is an unusual demand for building materials, both for present use and for future use. Plants supplying basic materials in the eastern markets were carrying at the end of August, orders far in excess of those placed in the same month of preceding years. Supplies of material manufactured during the past year are being purchased by far-seeing contractors and dealers who realize that production costs in the coming year are to be still higher and that the new output will undoubtedly come into the market at prices above those now prevailing.

Steel shows a steady increase in orders and in price. The steel workers are negotiating for a general increase which must be paid by the public, and in various lines of supply such as plumbing, electrical material, architectural terra cotta, stone and face brick, generally higher costs may be expected. Supplies of various materials in many lines are completely exhausted and other supplies are being held for advances. The question of building labor is also difficult. On practically all jobs the experience is that when the work is well

under way there comes a demand by the workmen for increased pay. In many instances this happens several times during the course of one job.

We find, therefore, that the contractor is seriously perplexed and that there is considerable merit in his statement that he cannot give a guaranteed price at this time.

An Opportunity for Service

This condition should be significant to architects in that it opens up an excellent opportunity for rendering real service to the owner by making it possible to build under the cost-plus system. The architect by supplying a form of controlling service which will keep the builder working in the interests of the owner without running up excessive costs under the cost-plus method of building can meet a distinct need at this time.

The various forms of contract between a builder and an owner may be generally classified as the straight contract and the cost-plus contract. The average builder to-day objects strongly to either the straight contract or the cost-plus contract in which the owner pays pay roll and material bills plus the builder's percentage and in return has a guaranteed figure which the builder will not exceed except at his own loss. The builder claims, with apparent justice, that he cannot safely figure costs and that he cannot, therefore, guarantee the price. On the other hand the owner is usually unwilling to place a cost-plus contract without having some guarantee as to the ultimate cost of his building, and it is, therefore, evident that to meet these conflicting conditions some controlling force must be exercised which may make it possible to utilize the services of a practical builder, paying for such service a percentage of the cost of the work done, and at the same time to satisfy the owner that his interests are protected. The architect is the logical person to do this, and if he is equipped so that he may carry out such service he will not only gain appreciably in the amount of business transacted through his office but will create a well-satisfied clientele.

The cost-plus method of building has been discussed on various occasions both favorably and unfavorably, but there is little doubt that many valuable features become apparent when this form of contract is analyzed. Through the establishment of the cost-plus method of contractual rela-

tions the experienced builder may if he chooses become a valuable ally of the owner, supplying the skill and knowledge necessary to take the most advantage of difficult conditions in order to construct a building at the lowest possible cost and without delay or friction other than that involved in the handling of materials and labor.

It is well to realize that the reputable builder is to-day attempting to establish his activities on a service basis and to build a reputation for fairness, careful buying and efficient handling of labor. It is evident, therefore, that if both owner and contractor have the same view in mind, that is, to construct a good building at the lowest possible cost under present conditions, a most advantageous situation is created.

The principal question at issue, therefore, is for the owner to know in some manner that the contractor is working for his best interests and not simply carrying on a percentage job, attempting only in a careless manner to avoid the factors which increase cost. To be certain of the efficiency and dependability of the contractor, the owner should be placed in a position where he is able to back his own judgment by that of a third party interested only in his behalf and having the proper knowledge of building methods and conditions, to know that the work of the contractor is proceeding along proper lines and not exceeding proper costs. Undoubtedly the most logical person to protect the owner's interests is the architect, provided he or his organization is fairly equipped to render such service.

It may be plainly seen that the only architects fitted to render such service are those who by actual experience have a well-rounded knowledge of building methods and conditions, and are closely in touch with the building materials and labor market; or those who have or may create organizations to meet this need.

Practical Method of Protecting Owner's Interests

The purpose of the following paragraphs will be to outline the various factors of protection possible under the cost-plus method of building and a course of procedure which has already been found successful from the practical view point.

The contract which is made with the builder should carry two important elements of protection to the owner as follows: first, that the owner shall have the privilege of discharging the contractor at any time during the course of the job. This protective clause is inserted to make it possible to meet unsatisfactory conditions or methods of handling the work by discharging the contractor before any great waste has resulted. The second protective clause should place the purchase of all

building material in the hands of the owner rather than the contractor, and the actual purchasing should be carried out by the architect who is providing protective service for the owner. Through this method the control of building material costs is in the hands of the owner and a considerable saving may be enjoyed. The contract should be made on a cost-plus basis and the fee to be received by the builder should consist of 10 per cent on the cost of labor and 6 per cent on the cost of material; the balance of 4 per cent on the cost of material being paid to the architect for service rendered to the owner in connection with purchasing.

On many elements of cost in the construction of a building to-day, definite contract figures may be obtained from sub-contractors. Thus in the average building operation the builder should obtain and submit to the owner or his agent a definite sub-contract figure on plumbing, heating, painting, millwork, plastering and masonry. The figure on plumbing should include labor and all material and fixtures. The figure on heating should be on the same basis. On the painting sub-contract, plastering sub-contract and masonry sub-contract, the contract figure received from the sub-contractor should cover labor only, as all paint, plastering material and masonry material should be purchased by the owner. The owner, or his agent, the architect, will of course purchase all lumber, brick and other supplies except those provided under the sub-contracts outlined above. The labor on masonry, plastering and painting can be let to small local contractors who handle labor only and have not the capital for general contracting. On large building operations the architect as agent for the owner will have a man on the job in charge of the material yard and will be placed in a position to know definitely what material is being used. In letting sub-contracts for plastering, the labor figures should be obtained per square yard; in stonework, per cubic foot; and in brickwork, per thousand brick. Where poured concrete is used the contractor can carry out his own work, as he has available carpenters for making forms and labor for handling the material.

Through the medium of definite sub-contract figures obtained by the builder, the owner is of course definitely protected. On the purchase of lumber, brick and all supplies, the owner must be protected by the service ability of the architect who is working entirely in his interest. The only important protective factor still left for consideration involves the amount of labor used by the contractor in carrying out carpentry and any other work not definitely contracted through the medium of sub-contract. Here again the architect's organization is called upon for service in carefully super-

vising the job to see that an excess of labor is not used and that the contractor's management of the job is efficient.

In order clearly to demonstrate the various elements of a building construction job which must be considered in an analysis of protective measures under the cost-plus system of building, the following table is given showing the natural divisions of such work when estimating cost. In this table the items in italics indicate fixed costs. On each of these it is possible to get a definite figure before starting construction. Other items in ordinary type indicate danger points directly under the control of the contractor that must be carefully checked by the architect rendering this service. Further explanation of this table will be found in paragraphs immediately following.

Tabulation of Cost Elements in Cost-Plus Construction (Dwellings)

Items in italics show quantities which can be fixed in price. Items in ordinary type show danger points where cost may overrun estimate.

Materials	Labor
Rough lumber for framing, shingles, lath, etc.	Rough carpenters
Masonry materials, brick, lime, sand, cement, plaster, stone, etc.*	<i>Masons</i> Bricklayers <i>Plasterers</i> Common labor
<i>Millwork</i> (Interior and exterior finished trim)	Finish carpenters Trimmers
<i>Plumbing supplies</i>	Plumbers
<i>Paints</i>	Painters
<i>Heating supplies, gutters, leaders, etc.</i>	Skilled labor
<i>Electric wiring supplies and fixtures</i>	Skilled labor
<i>Excavating, grading, terracing, labor contracts</i>	

It is evident from the above table that the architect's service may be developed to a point to handle purchasing both of materials and of sub-contracts (this may be done in co-operation with contractor if desired), and in supervising work to check costs on items shown in ordinary type above. On many of the fixed price items shown in the above table such as plumbing sub-contract, heating sub-contract and similar operations, the fixed price is the result of competitive bidding so that the owner may be sure that in all such elements he is getting minimum cost.

In order to show how definitely information as to costs may be given to the owner before a building contract is let on a cost-plus basis, the above tabulation may be grouped as follows:

*It is of course advisable to get definite prices on masonry material before entering into contract if possible. This depends entirely upon the connections of the purchaser and his ability to get quoted prices which will hold.

Elements Definitely Fixed in Price and Purchased Under Competitive Conditions

Millwork
Masonry

Elements Fixed by Competitive Sub-Contracts

Plumbing materials and labor
Masonry labor
Plaster labor
Painting materials and labor
Heating supplies, gutters, leaders, etc., and labor
Electric supplies and labor
Labor for excavating, grading and terracing

It is interesting to note how, by careful analysis in procedure based on experience, many of the elements which are feared in the cost-plus building system may be eliminated and may be defined before a contract is entered into, provided the owner uses the services of an architectural organization capable of supplying the needed knowledge which must act as his protection.

Returning to the above tabulation we find that the only items which cannot be absolutely fixed in price before entering into a contract consist of the following:

Rough lumber
Rough carpenter labor
Bricklayer labor
Common labor
Finished carpenter labor

In regard to fixing the cost of rough lumber, this item must be left to the skill and judgment of the buying organization whether it be the architect or the owner, but should not be left to the builder except under the supervision of other parties to the contract. In order to keep down the cost of labor as shown in other items in the last tabulation, the architect should maintain close supervision on the job to see that labor costs are not excessive and that the job is being handled in a manner which will result in the most efficiency from labor employed.

A final question which has not been touched upon in this article relates to the definition of cost as implied in the term "cost-plus." It may be plainly seen that "cost of a job" is a broad term which may allow many charges to the owner which to him may not seem fair. For instance, there are the items of building equipment (tools and machinery); changes in working drawings requiring additional service of architect and draftsmen; traveling and field office expenses.

In drawing the cost-plus contract the "cost" should be clearly defined in all its elements. In a later article the factors of "cost" fairly chargeable to owner and contractor will be discussed.

National Prohibition Injects New Element in Building Situation

IN the history of our national legislation no drastic action has had as great an actual and potential effect on real property values and commercial activity as that now developing from prohibition of the manufacture and sale of alcoholic beverages.

A great industry, representing hundreds of millions of dollars in invested and credit capital, has suddenly been paralyzed; and from the great producing institutions along the lines of distribution to the retail units in every section of the country the shock is passing, upsetting realty values; changing building occupancies; bringing difficult problems into the hotel and public amusement business, and diverting to other lines an immense annual expenditure by the American people.

A Constructive Opportunity for Architects

The public is speculating idly as to what is to take the place of the saloon. Business men whose interests have been directly affected are facing the issue squarely and the ramifications of this sudden change are rapidly being felt in unexpected quarters. The owner of the Purple Cat, a restaurant café of Greenwich Village fame, states frankly that without the optimistic and overlooking glow of wine his bare brick walls and tawdry ornamentation will not hold the public long. Just as frankly the head of the great Statler Hotel organization says that if he and his organization had foreseen the coming of prohibition they would have spent \$2,000,000 less in building and fitting up the new Hotel Pennsylvania in New York City.

Thousands of the better located business corners in our towns and cities are suddenly made available for new lines of business. Everywhere new conditions have developed; new capital is being provided for investment and building activity is being stimulated by a demand for new construction and alterations to meet the situation.

Active real estate brokers and operators have sensed the situation and its possibilities for the promotion of new business. There is no reason why architects should not do likewise and the purpose of this article is to point out some immediate possibilities for new business which may apply to practically any city or town except those which were "dry" previous to national prohibition.

Hotel Design and Construction

In discussing the general situation with a prominent hotel man, we were recently informed that in his opinion the country "is due for a crop of new hotels." Further explanation brought out the fact that this condition is not due to prohibition, but to lack of accommodation in many growing

cities and towns and to the poor and inefficient design of the average hotel built during past years.

If we stop for a moment to think over personal experiences in traveling we will remember that in practically all the smaller cities of the Middle West, the South and many of our eastern states the hotels are old, poorly kept up and equally poor from the service view point. To many of these cities industrial prosperity has come, bringing with it an increase of civic pride and providing capital for investment in new hotels. Again we find that many of the more recently constructed hotels are losing ventures, owing principally to inefficient design.

It is interesting to realize that the new condition of prohibition is accentuating failure in hotel design. Many hotels have made money solely because the necessary margin between loss and gain has been supplied by the bar profits. With these out there has come a sudden realization of the value of proper hotel design, particularly from the utilitarian point of view.

As Mr. Statler says in a recent article:

"Every dollar spent in construction, decoration and furnishing of a new hotel is invested capital on which we must get return!"

It is evident, therefore, that where investment is made in extensive drawing rooms, lounges, writing rooms, lobbies and similar non-income-producing space, the required return must be loaded on the income-producing units of the hotel's business. Certainly this is not good business and the proof is that the average "showy" hotel in our smaller cities has passed through periods of investment loss (failures and foreclosures) until the losses of first owners have cut down capital investment to a point correlative to income-producing possibilities. By careful planning for original construction the amount of public space of non-producing character can be cut down to a proper ratio to provide safe investment.

Note carefully the possibilities offered the architect in this field. A real need for new hotels exists, in which architectural design, aesthetic and utilitarian, shall offset the loss of liquor profits. Further necessities are the elimination of the overhead cost of unbalanced ratio between producing and non-producing space, and reduction to a minimum of the investment in building and decoration without sacrificing atmosphere. The increased cost of building simply accentuates these requirements.

In the case of the Hotel Pennsylvania, where \$2,000,000 less would have been invested if prohibition had been foreseen, a difficult problem confronts the management. To meet the cost of

financing this hotel, and provide a return for investors, at least 8 per cent must be paid on the investment before profits can be taken. This means that on the \$2,000,000 which might be termed an over investment under present conditions, \$160,000 must be earned and paid out annually. Knowing conditions, the architect must be able in his design to eliminate overhead charges due to non-earning investment.

It is evident, therefore, that in connection with the promotion and carrying out of the many hotel projects which must meet new and rapidly changing conditions, the architect can and should play an important rôle.

It is to be expected also that many hotels will be remodeled to meet these conditions. Here are commissions which depend solely on the architect's ingenuity and selling ability. It will pay to study the effect of prohibition on hotels in your town or city. The architect who comes forward with a straight business solution involving remodeling, perhaps cutting down public space by the introduction of stores — perhaps remodeling the entire building as an apartment house or for some other occupancy, will find that he has created a commission and, moreover, one which is in the public eye.

Momentum of Activity in Remodeling Buildings

The tidal wave of prohibition is carrying into the market countless buildings of various types available for a different class of occupancy. In many cases these buildings were designed for special purposes, — cafés, road houses, retail liquor salesrooms and contributory activities. For the most part they occupy important business locations which will be much sought by other mercantile lines of business.

Extensive remodeling will take place, involving the services of architects and particularly of those who may make valuable suggestions to the end that property owners shall not suffer by the change in business. Recent real estate transactions in many of our cities evidence the fact that many old buildings occupied by cafés, are to be replaced by new structures. This condition is logical in view of the fact that this class of occupancy has been able to pay abnormal rentals and that old buildings housing such occupancy even on high priced and highly taxed land continued a paying investment until prohibition reduced the income value. As a result new buildings, bearing an economically sound relation to the land value, must be provided to insure a commensurate income for specific and valuable business location.

Many estates and other property holders of long standing will for the first time enter into building

activities, adding considerably to the clientele of the architectural profession.

Diverting Millions of Annual Expenditure

It is quite evident that under national prohibition conditions a vast annual expenditure by the general public will be diverted to other channels. Not only the liquor bill of the nation is to be considered, but a great volume of expenditure for amusement in certain types of restaurants, cabarets and similar lines where the cutting off of liquor profits will close the doors.

Where is this money to be spent? Certainly some of it will be saved and of this amount a large percentage will ultimately be invested in homes, mortgages and real estate of various types. An immense sum, however, will be diverted into other channels of amusement and entertainment. The experience of Detroit, which went dry early in 1918, shows certain interesting indications. The candy and soft drink business has greatly increased. Restaurant business is better. The theater business has shown remarkable improvement and a need for new theater buildings is evident.

The significant point to architects is that there has been suddenly released for the benefit of amusement enterprises, other than those dependent upon the purveying of liquor — a large potential income. To induce and handle this business, building alterations, extensions and new buildings of many types are required immediately. It should not prove difficult to make a local analysis of the lines along which this new business will develop in our towns and cities. By constructive co-operation with real estate men and owners of affected property considerable new architectural work is to be developed. New theaters, motion picture houses, club and community buildings will spring up in every section of the country to meet this demand. In Detroit there is a large, recently constructed six-story building given over entirely to commercial amusement, — bowling, billiards and similar semi-athletic and amusement enterprises. This building is proving highly successful.

An Impetus to the Community Building Movement

For some months an extended propaganda has been carried on, urging the public to provide war memorials in the form of community buildings. Sensible arguments have been set forth emphasizing the economic waste of monuments and other memorials having appeal to the eye only and without continuing practical use. The memorial community idea has met with but a small degree of practical success as yet — if the number of buildings actually under way may be taken as a commentary.

As time passes, however, the increasing success of this movement will undoubtedly become evident; but the coming of prohibition is certain to act as an important stimulus in focusing public interest on this subject aside from the memorial connection. The practical value of providing club facilities for young men; the need of community centers in congested districts; the need for community buildings in colored sections of our cities will more than ever be evidenced under prohibition conditions. The time is coming in the near future when every town and city in the country

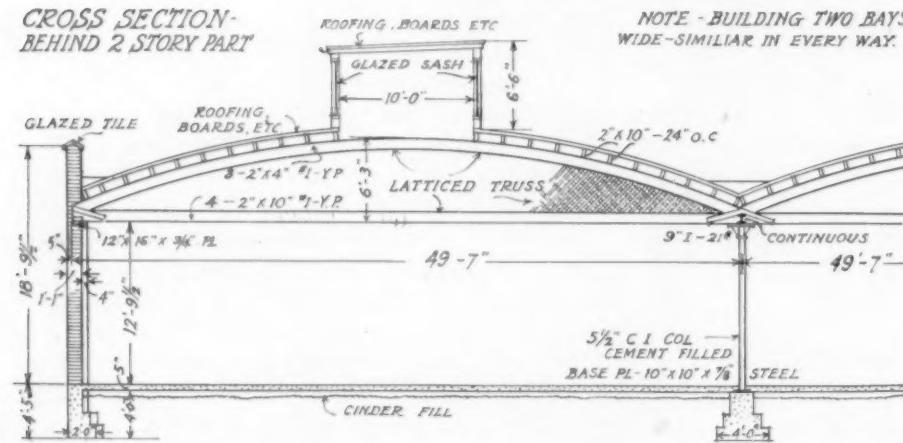
will maintain community buildings in proportion to the population.

There are many other important phases of the new condition which would bear interesting discussion, but these must be left to the analytical thought of those who may read this article. Its purpose has been to direct thought and discussion to a volume of new business which is to develop for the architectural profession under the changed conditions of national prohibition; and with a view toward emphasizing the importance of taking advantage now of a promising situation.

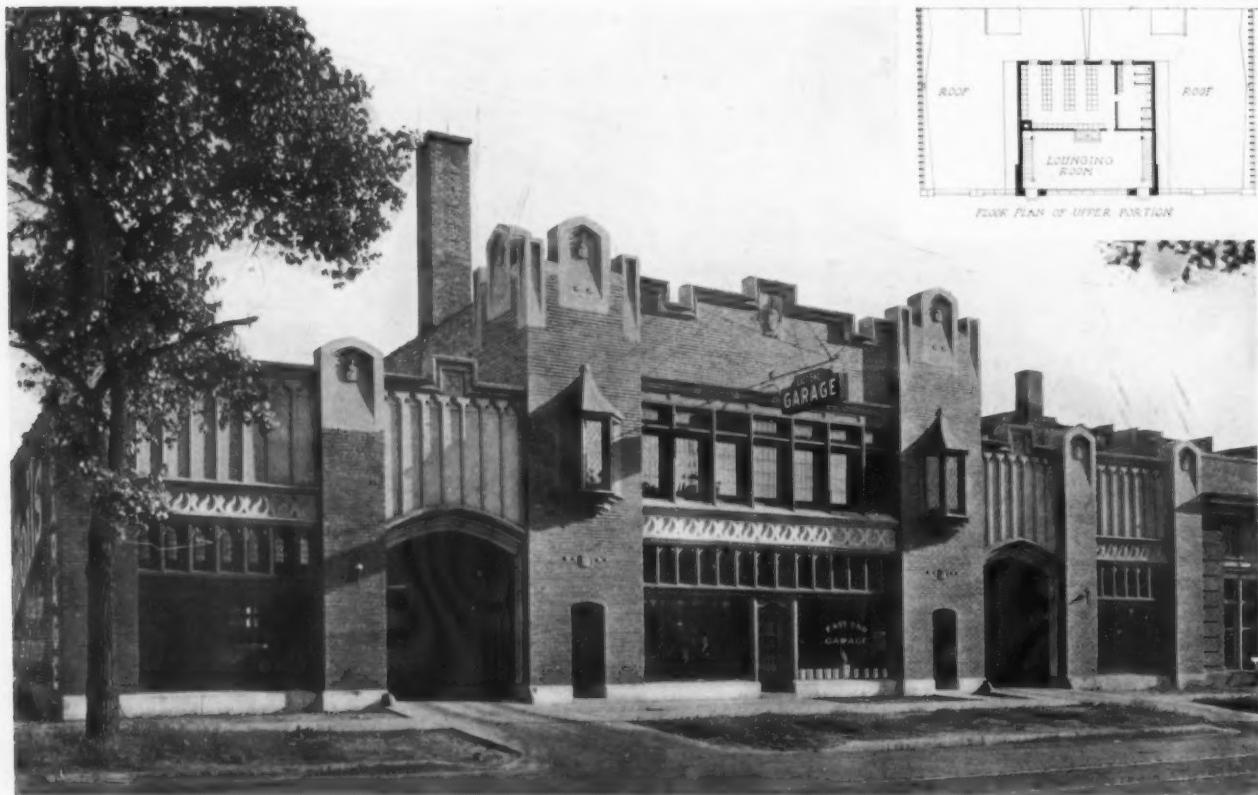
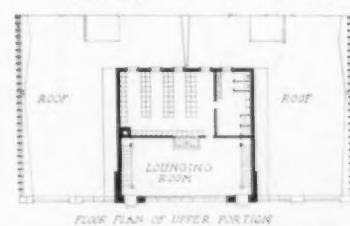
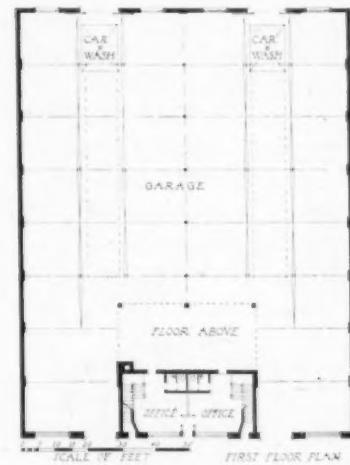
East End Garage, Chicago, Ill.

S. N. CROWEN, ARCHITECT

CROSS SECTION-BEHIND 2 STORY PART



NOTE - BUILDING TWO BAYS
WIDE-SIMILAR IN EVERY WAY.



Jurisdictional Strikes

By ERNEST JOHN RUSSELL
Chairman of A.I.A. Committee on Jurisdictional Disputes

THE building industry is usually beset with troubles—some sacred and some profane. Coming under the latter category is the trouble brought on by jurisdictional strikes. This evil has almost unconsciously grown until it now forms about 75 per cent of all strikes in construction work. The consequent waste through loss of time and money runs into millions. Such a waste, even in normal times, is a detriment to the industry, and in these times of high prices it is acting as a deterrent.

Recognizing this and being exceedingly anxious to get the industry re-established, The American Institute of Architects last November appointed a committee to see if anything could be done to eliminate the jurisdictional strike. The committee took the matter up with the Building Trades Department of the American Federation of Labor and were gratified to find that the Department recognized the evil and had previously taken steps to eliminate it. They had secured from the Department of Labor the services of John B. Lennon and had requested him to make a country-wide examination of the situation and prepare recommendations for consideration. They cordially invited architects to assist, and, as a consequence, meetings were held by representatives of labor, general contractors and architects.

A tentative plan was drawn up, submitted to the various organizations for criticisms and suggestions, and was finally approved by the committee which represented the various interested organizations. It was then submitted to the respective memberships, and has been approved by the Building Trades Department, the Engineering Council, the Associated General Contractors of America, and the American Institute of Architects. It was more recently submitted to the Convention of the National Association of Builders' Exchanges and the National Building Trades Employers' Association, both of which met in Atlantic City in July.* Its adoption by these bodies will complete the preliminary arrangements.

Briefly, the plan states that all matters of dispute relating to the interests of different trades in work to be performed shall be submitted to the National Board of Jurisdictional Awards of the Building Industry, and the decision of two-thirds of the members shall be binding upon all parties. The Board will be composed of eight members,—three representing labor, three employers of labor, one engineer and one architect. The decisions of

the Board shall govern architects and engineers in writing specifications, and contractors in awarding contracts.

Such a step is bound to have a great influence on the building industry. If it works out as its creators hope it will, the influence will be for good and be far reaching because if the Board has the ability to settle fairly jurisdictional disputes, it will undoubtedly be asked to take part in settling other disputes which arise from time to time.

The recognition of the principle of getting together to settle pending disputes and to prevent others from arising in the future is in itself an advance step.

In creating such a Board the building industry recognizes for the first time the fact that it is composed of employees, employers and professional men.

The whole plan seems so sane and healthful that it is bound to be watched with the utmost interest not only by the building industry but the public generally, and should be helpful in encouraging the public to proceed with needed construction work.

So far as the duties of architects are concerned, they are of the simplest character. When decisions have been made by the Board, individual architects will be apprised of them and it will be merely their duty to specify the various materials in the particular branches to which the work has been assigned. Each member of the Institute is under definite obligation to write his specifications in accordance with the decisions of the Board, and, failing to do so, he is liable to suspension in accordance with the terms of agreement between the five organizations. It is, however, an obligation of such simple character and can be so easily fulfilled that there will be little likelihood of architects not observing it.

The first meeting of the Board was held on August 11th in Washington and it will now proceed to hear the cases presented to it for decision. These cases may be brought by the International Unions or the employers of members of these unions.

As soon as decisions have been rendered they will be transmitted to the officers of the five organizations that are parties to the agreement, who in turn will transmit the decisions to their members. It is expected that members of the Institute will receive the first of the decisions in December.

EDITORIAL COMMENT

FIRE PREVENTION WEEK

THE National Fire Protective Association has named the week of October 6th, Fire Prevention Week. The activities of this association in attempting to make the public realize the great need of fire-preventive measures should serve to remind the architectural profession of the very large responsibility it holds in the matter. The staggering sum of nearly \$290,000,000 which represents the fire loss in the United States for the year 1918 is evidence enough that we are permitting a steady economic waste which will eventually be a serious drain on our resources. This sum reduced to a per capita basis is \$2.63 and compared with 11 cents, the corresponding figure in Holland, indicates in how reckless a manner a large part of our national wealth is needlessly consumed each year.

The main cause of such appalling waste is the flimsy methods of building construction we have long permitted. It is only within recent years we have given serious study to fire-proofing methods and that we have been forced to do because of the necessity of building high structures in our larger cities. This has not affected our domestic work to any appreciable extent, or even such important buildings as schools and factories in many sections of the country. There has been too much thought given to the initial cost of buildings and too little to means of securing permanency and fire-safe construction. The difference in cost between safe and flimsy construction is, however, gradually being reduced and when the longer life of a well-constructed building is considered, there is little reason for continuing our careless methods. The architect in his position of expert adviser should assume the duty of acquainting the owner with the economic benefits of fire-resisting construction. If the best possible general design is employed, the most reliable protection afforded by the use of fire-resisting materials properly applied, and an installation of equipment made to care for incipient fires, a great forward step will have been taken.

EDUCATING THE PUBLIC

ARCHITECTS have long held that education of the public in architecture was essential to a popular appreciation of the art, and many ways of reaching the busily occupied public have been discussed. A method that has met with considerable success has recently come to our attention, but the credit for conceiving it must be given a real estate man of Springfield, Mo., where the work was carried on, and not to an architect.

The feature was called "Tiny Town" and was part of a local "Build Now" movement. Its

purpose was to interest the school children in overcoming a housing shortage, and through them reach the entire community. With the aid of the manual training and drawing departments of the public schools, the pupils built a large model of a residential district, comprising thirty-two blocks, complete in all details, at a scale of one-half inch to a foot. About one thousand miniature houses were erected and it is stated that the architectural features were surprisingly accurate. Building contests and prizes made the miniature town a topic of conversation in a great many homes, and upon completion of the work a public exhibition was held.

The interest the idea aroused in the children suggested the use of the scheme as an aid in the teaching of citizenship and civil government, and it is intended next year to repeat the plan on a larger scale and in the open, where a ten acre tract will be developed. The cost of the enterprise including the prizes was about \$5,000 which was contributed by people interested in encouraging building. The campaign reached all classes of the population and a decided revival in building has taken place since its close.

WHEN IS A TRUST?

IN the general inquiry into the high cost of living, the building material market has not escaped the eyes of Washington, and Federal activities of an investigatory nature are being directed to the production and price of basic materials. In addition to the many troubles which are disturbing the building material market there have come various rumors of price-reducing activities, and specific attack has been made on the Portland cement industry under anti-trust laws.

There can be no doubt that many phases of the high cost of building should be investigated and that in some cases drastic action should be taken tending toward the reduction of unfair prices. We do not know that the co-operative activities of the manufacturers of Portland cement have reached the proportions of a trust, nor that unfair methods of price fixing have been adopted. We do know, however, that the same co-operative activity which has lead to the Portland Cement Association with its staff of investigators has afforded invaluable contributions to the work of the architect and builder, and a sense of realization of the benefits which have been derived by the building public from such co-operative activities leads us to express the hope that any implication or inconvenience which may be suffered through Federal investigation will in no way retard the progress of the service branch of this industry.